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NONPHARMACOLOGIC INTERVENTIONS
FOR AGITATION IN PERSONS WITH DEMENTIA

by Cassandra M. Pieschke

A Thesis Submitted in Partial Fulfillment
Of the Requirements for the
University Honors Program

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ABSTRACT

Nonpharmacologic Interventions for Agitation in Persons with Dementia

Cassandra M. Pieschke

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Many interventions exist to address agitation behaviors in patients with dementia. The main objectives of this paper are to review the efficacy of nonpharmacologic interventions, and to receive input from current caregivers in order to develop recommendations for future practice and research. First, this paper will explore the evidence behind individual nonpharmacologic interventions for agitation. Next, it will examine a theory that concerns the etiology of agitation and explore how it could be used to mold more effective interventions. Lastly, a qualitative interview will be conducted with caregivers to better understand how staff currently address agitation and to obtain their opinions on what tools they believe would be helpful for them to improve practice. Overall, this paper will review the efficacy of interventions for agitation in persons with dementia and propose new recommendations on how to address agitation by designing interventions that fulfill patients' needs. The goal of this paper is to improve the care of patients with dementia by identifying evidence-based interventions and developing tools and recommendations to decrease agitation.

KEYWORDS: Dementia, Agitation, Nonpharmacological, Interventions

TABLE OF CONTENTS

ABSTRACT	iii
TABLE OF CONTENTS.....	iv
ACKNOWLEDGEMENTS.....	ix
CHAPTER 1 – Introduction & Background	10
Overview of Dementia.....	12
Definition	12
Types of Dementia.....	13
Preventing Dementia.....	14
Treatment	14
Dementia’s Impact	15
Agitation and Dementia	16
Pharmacologic vs Nonpharmacologic Treatment	18
CHAPTER 2 – Literature Review	21
Individual Nonpharmacological Therapies	22
Music Therapy	22
Pet Therapy	25
Aromatherapy	29
Massage Therapy	33
Snoezelen Therapy.....	35
Electroconvulsive Therapy (ECT)	37
Baby Doll Therapy.....	38
Reminiscence Therapy.....	39

Exercise Therapy	40
Art Therapy	42
Light Therapy.....	43
Summary of Individual Therapies	44
Unmet Needs.....	46
Unmet Needs Theory	46
Interventions Based on Needs.....	47
Determining a Cause.....	49
Summary of Individualized Needs-Based Interventions	50
Literature Review Summary	50
 CHAPTER 3 – Methods	53
Design & Process	53
Participants.....	56
Analysis.....	58
 CHAPTER 4 – Results.....	60
Causes of Agitation.....	60
Unmet Needs.....	61
Unmodifiable Causes	61
Pain	62
Anxiety/Fear or Frustration.....	62
Too Much or Too Little Stimulation.....	63
Uncomfortable Position	63
Other Causes	64

Interventions for Agitation.....	66
Choosing an Intervention by Using a Checklist or Prior Knowledge.....	67
Activities or Stimulation	67
Redirection.....	68
Education	68
Intervention That Addresses Unmet Needs	69
Exercise.....	70
Family Involvement	70
Communication.....	71
Maintaining Safety	72
Keeping A Consistent Schedule.....	72
Freedom, Autonomy, and Purpose.....	73
Pain Relief/Massage.....	73
Environment.....	74
Refection	74
Recurring Idea.....	75
Everyone is Different.....	75
 CHAPTER 5 – Discussion & Conclusion.....	76
Causes	76
Unmet Needs.....	77
Unmodifiable Causes	78
Pain	78
Anxiety, Fear, and Frustration	80
Too Much or Too Little Stimulation.....	81

Uncomfortable Position	82
Other Causes	82
Interventions	83
Checklist, Prior Knowledge, or Determining Cause.....	83
Activities or Stimulation	87
Redirection	90
Education	91
Intervention That Addresses Unmet Needs	93
Exercise.....	93
Family Involvement	94
Communication.....	95
Maintaining Safety.....	96
Keeping A Consistent Schedule.....	97
Freedom, Autonomy, and Purpose.....	98
Pain Relief & Massage.....	99
Environment.....	101
Reflection	101
Recurring Idea – Everyone is Different	102
Summary of Recommendations & Actions	103
Designing a Checklist	107
Keeping Track of What has Worked in the Past.....	109
Education	111
Limitations	112
Conclusion	113
References	115

Appendix A	127
Appendix B	128
Appendix C	131

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CHAPTER 1 – Introduction & Background

Dementia is a term that's often associated with memory loss, and many believe that the term means the same thing as Alzheimer's Disease. Although memory loss can be part of dementia, and Alzheimer's Disease is a type of dementia, these two terms barely glaze the surface of what dementia is and looks like. Dementia, unlike Alzheimer's, is not a specific disease. It's a general term that is used to describe any severe decline in mental ability (Alzheimer's Association, 2018). Dementia is a symptom of a disease like Alzheimer's, but there are many other diseases that can cause it as well. Dementia is significant because it affects a large percentage of the population and puts a large financial burden on communities. In fact, in 2015, 47 million people worldwide had dementia, and the costs associated with it accounted for 1.1% of the global GDP (World Health Organization [WHO], 2017). The high cost of care and prevalence of the disease illustrate the importance of research for the management of dementia and the symptoms that follow.

Currently, there is a large library of research that exists on dementia, and specifically on Alzheimer's Disease. However, most of this research focuses on how to manage the functional decline and cognitive symptoms that accompany the condition. In other words, most research looks at how to 'cure' causes of dementia. The problem with this is that while looking for a cure, people with dementia are suffering from more symptoms than just cognitive decline. These symptoms include both behavioral and

psychological symptoms which can reduce quality of life and be problematic to the individual, caregivers, and others around.

One concerning behavioral and psychological symptom is agitation. This symptom is problematic for both the individual and their caregiver and can lead to unfavorable outcomes and increased cost of care (Cerejeira, Largarito, & Mukaetova-Ladinska, 2012). Currently, there is little research on these symptoms and how to address them without using antipsychotic medications, which can carry very harmful side effects (Tampi et al., 2016). These medications may work initially, but they don't address the cause of patient's agitation. More research has been looking at how to address agitation by nonpharmacological means, or without using medications.

The purpose of this paper is to further examine how to manage this agitation in patients with dementia without using antipsychotic medications. This paper will include five major chapters. Chapter One is an introduction and background that includes information on dementia, the presence of agitation, and the problem with pharmacological treatment. Chapter Two is an extensive literature review that closely examines different interventions that can be used to calm agitation in a person with dementia. Chapter Three thoroughly describes the methods that were taken to conduct a qualitative study about agitation in the clinical setting. The study involves interviews with healthcare professionals on what they believe to be the cause of agitation in patients, and how they go about addressing it. The purpose of this study was to fill a gap in the literature between what interventions might be effective, and what caregivers are using in practice. Chapter Four lists the results of the qualitative study. And lastly, Chapter Five includes a discussion of the results, recommendations for future practice and research,

limitations of the study, and a conclusion. Collectively, the goal of this paper is to improve the care of individuals with dementia by identifying evidence-based interventions and tools that can be used to address agitation in the clinical setting.

Overview of Dementia

Definition

Dementia is an umbrella term for a group of many different neurocognitive disorders that all cause some degree of cognitive impairment (World Health Organization [WHO], 2017). Dementia is not a specific disease. Instead, it is a group of symptoms, or a syndrome, that is characterized by a significant deterioration in cognitive function (Abraham & Zun, 2017). This cognitive impairment can be related to a decline in memory, but it doesn't have to be. Instead, dementia can also cause a decline in attention, language, learning, judgement, or social cognition (American Psychiatric Association [APA], 2013). The term "dementia" can be further classified by the remarkable decline seen the "person's ability to maintain activities of daily living" (WHO, 2017, p.2)

According to the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; APA, 2013) there are four different diagnostic criteria that must be met before a person is diagnosed with dementia. These four criteria include: "evidence of significant cognitive decline from a previous level of performance," an "interference with independence in everyday activities," deficits that do not only appear with delirium, and deficits that "are not better explained by another mental disorder" (APA, 2013). The DSM-V also explains that the term 'dementia' is to be replaced with the term "major neurocognitive disorder". This is in an effort to reduce the stigma attached with the term itself, especially with younger patients. Although the APA reclassified the term, they

understand that the term ‘dementia’ is most commonly used and will not be eradicated from use anytime soon (APA, 2013). For the purpose of this paper, the term ‘dementia’ will be used in place of the term ‘major neurocognitive disorder’ to reflect the public’s familiarity with the term.

Types of Dementia

As mentioned earlier, dementia is not a specific disease. It is a group of symptoms that all relate to a loss in cognitive function (Abraham & Zun, 2017). There are many different diseases that cause dementia. The most common is Alzheimer’s Disease, which accounts for approximately 60-70% of all dementias (WHO, 2017). Alzheimer’s Disease is irreversible and progressive. It is not a normal part of aging. The disease itself is characterized by the progressive accumulation of beta-amyloid plaques and protein tau tangles inside the neurons of the brain. These plaques and tangles cause the neurons to die which inevitably leads to brain damage (Alzheimer’s Association, 2017). The two most common risk factors for developing Alzheimer’s Disease include a family history and advancing age. This disease most commonly causes anterograde amnesia, or the loss in ability to form new memories, but a preserved ability to recall long-term memories (Knopman, 2016).

The second leading cause of dementia is vascular dementia (National Institute on Aging, 2017). Vascular dementia is a disease that is caused by blood vessel obstruction or bleeding in the brain, otherwise known as a stroke (Alzheimer’s Association, 2017). It can also result from microvascular disease in which the small blood vessels in the brain become damaged (APA, 2013). Risk factors for vascular dementia include hypertension, smoking, diabetes, obesity, high cholesterol levels and any other risk factors for

cerebrovascular disease. Other causes of dementia include dementia with Lewy bodies, mixed dementia, Frontotemporal lobar degeneration (FTLD), Parkinson's Disease, Creutzfeldt-Jakob disease, alcohol related dementia, and others (Alzheimer's Association, 2017). All these diseases are known to cause the cognitive impairment that is characteristic of dementia.

Preventing Dementia

It is usually impossible to find the root cause of a particular person's dementia (Alzheimer's Society, 2017). However, researchers have studied factors that can increase a person's risk of developing dementia (Livingston et al., 2017). Interventions to reduce this risk of dementia are related to social determinants of health and include "more childhood education, exercise, maintaining social engagement, reducing smoking, and management of hearing loss, depression, diabetes, and obesity" (Livingston et al., 2017, p. 2673). These interventions "might have the potential to delay or prevent a third of dementia cases" (Livingston et al., 2017, p. 2673). Although prevention of dementia is important, it is not a sure thing. Age remains the largest risk factor for dementia (Livingston et al., 2017), and is a risk factor that is completely non-modifiable.

Treatment

Dementia is always progressive, and it does not have a cure. There are several drugs that may temporarily improve some of the symptoms associated with the dementia, but there is currently no treatment available to stop the progression of it (Alzheimer's Society, 2017). Currently, research is being completed to test new drugs and therapies (Livingston et al., 2017), in hopes that one day there will be a cure. Until a cure is established however, it is increasingly important that focus be put on the improving the

quality of life for people living with dementia (Alzheimer's Society, 2017). Finding a cure may not be completely within our control. However, making life more enjoyable, satisfying, and comfortable for people with dementia should be a goal, and reducing agitation and behavioral symptoms is a start.

Dementia's Impact

Dementia impacts the individual that has the symptoms, the family and caregivers of that individual, and even the global economy. It is a debilitating disease that is a major cause of handicap and cessation of independence in older adults. It can be a very stressful diagnosis for everyone involved. Globally, dementia is becoming, and already is, a large problem. In 2015, 47 million people worldwide had dementia (WHO, 2017). In that same year dementia cost the world US\$818 billion and accounted for 1.1% of the global GDP (WHO, 2017). These numbers are expected to grow substantially. By 2030, it is predicted that 75 million people will have a diagnosis of dementia and that it will cost the world US\$2 trillion (WHO, 2017). Dementia has a substantial impact on the world economy, making it a global challenge.

On a more personal level, dementia also has a substantial effect on the family and caregivers of people with dementia. These caregivers are “more likely than family caregivers of people without dementia to have emotional or mental health problems (41 percent versus 16 percent) and behavioral issues (15 percent versus 4 percent)” (Alzheimer's Association, 2017, p.344). As the patient's health and mental status slowly deteriorates with time, it can become increasingly difficult to provide quality care at home. After providing care at home becomes too difficult, many of these patients are placed into special care centers for memory patients, or long-term care facilities. This

admission to the nursing home has been linked to increasing agitation and behavioral symptoms along with depression, decreasing cognition, frailty, and falls (Sury, Burns, & Brodaty, 2013). Overall, it can be said that there is no doubt that dementia has a profound impact on the global economy, family caregivers, and the patient themselves.

Agitation and Dementia

People with dementia will often experience many different behavioral changes throughout the course of their disease (Cerejeira, Largarito, & Mukaetova-Ladinska, 2012). These behavioral changes or set of symptoms that occur in this population have two common names. They are referred to as either ‘behavioral and psychological symptoms of dementia [BPSD]’ or as ‘neuropsychiatric symptoms [NPS]’ (Selbæk, Engedal, & Bergh, 2013). These behaviors include symptoms such as delusions, hallucinations, depressive symptoms, anxiety, euphoria, agitation, aggression, apathy, and disinhibition (Selbæk, Engedal, & Bergh, 2013). In general, these symptoms affect up to 97% of people with dementia over the course of their disease (Steinberg & Lyketsos, 2012). These behaviors are also often associated with higher levels of distress in both the person with dementia and their caregivers (Cerejeira, Largarito, & Mukaetova-Ladinska, 2012). Behaviors such as aggression and agitation also affect the care of the patient themselves. For example, it can be difficult for caregivers to give a patient a bath or brush their hair if they are combative and consistently resisting.

Research has shown that these behaviors are associated with unfavorable outcomes, an increased use of healthcare resources, and an increased cost for care (Cerejeira, Largarito, & Mukaetova-Ladinska, 2012). The problem exists in the fact that current research focuses more on how to address the functional decline and cognitive

symptoms of dementia and less on how to address the behavioral symptoms (Selbæk, Engedal, & Bergh, 2013). Although cognitive and functional decline are important, the distress, adverse outcomes, and increased cost of care associated with behavioral symptoms should serve as a reason for conducting more research on how to address these symptoms.

This paper focuses specifically on two common neuropsychiatric symptoms, agitation and aggression. Agitation is defined as “inappropriate verbal, vocal, or motor activity not judged by an outside observer to result directly from perceptible needs or confusion of the agitated individual” (Cohen-Mansfield, 2009). Agitation can also be further classified into four different categories or subtypes. These four subtypes were defined by Cohen-Mansfield (2000b) and include: physically aggressive, physically nonaggressive, verbally aggressive, and verbally nonaggressive behaviors. Physically aggressive behaviors include physical actions that are also aggressive, such as physical sexual advances, pushing, spitting, kicking, biting, and hitting. Physically nonaggressive behaviors are still physical actions, but they are not perceived as violent or aggressive. They include behaviors such as inappropriate robing and disrobing, wandering, intentional falling, hoarding things, and general restlessness. Verbally aggressive behaviors include cursing, making strange noises, verbal sexual advances, and screaming. Verbally nonaggressive behaviors include complaining, negativism, repetitive questions, or constant and unwarranted requests for attention. Agitation and agitative behavior are always socially inappropriate (Cohen-Mansfield, 2000b).

Agitation in patients with dementia is most often measured by the Cohen-Mansfield Agitation Inventory [CMAI]. This tool was created by Jiska Cohen-Mansfield

and was designed to “asses the frequency of manifestations of agitated behaviors in elderly persons” (Cohen-Mansfield, 1991). It was developed primarily for use in nursing homes (Cohen-Mansfield, 1991). CMAI consists of 29 questions, each related to an agitated behavior. Each question can then be rated on a seven-point scale in regards to the frequency in which the behavior occurs – with a score of one meaning that the behavior never occurs, and a score of seven meaning the behavior occurs several times in an hour (Cohen-Mansfield, 1999). Multiple studies have confirmed the use of the CMAI as a reliable method of measuring agitation in patients with dementia (Zuidema et al., 2011 & Finkel, Lyons, & Anderson, 1992).

The prevalence of agitation in patients with dementia is very high. A study of 393 patients with Alzheimer’s dementia found that the prevalence of agitation was as high as 76% (Van der Mussele et al., 2015). The same survey also found that the presence of agitation in patients with mild cognitive impairment was as high as 60% (Van der Mussele et al., 2015). Another study which involved an interview with 177 dementia caregivers estimated the prevalence rate of agitation and aggression in patients to be 50.3% (Fauth & Gibbons, 2013). Agitation and aggression are both common behavioral symptoms in patients with dementia and are interrelated with each other.

Pharmacologic vs Nonpharmacologic Treatment

Pharmacologic interventions, or medications, are commonly used to address behavioral and psychological symptoms of dementia (Kirkham et al. 2016). The most commonly prescribed medications for these symptoms are antipsychotics (Greenblatt & Greenblatt, 2016). These drugs can be effective at reducing agitation and aggression in patients with dementia (Tampi, Tampi, Balachandran, and Srinivasan, 2016 & Ballard,

Waite & Birks, 2006). However, there are several problems with them. First of all, no antipsychotic drug has been approved by the U.S. Food and Drug Administration (FDA) for the treatment of these behaviors (Greenblatt & Greenblatt, 2016). Second, despite the fact that they may be effective at decreasing agitation and aggression in patients with dementia, antipsychotics also carry very harmful side effects (Ballard, Waite & Birks, 2006). These side effects are so severe that the American Psychiatric Association (APA) published an official statement on the matter (Reus et al., 2016). This statement included the recommendation that “nonemergency antipsychotic medication should only be used for the treatment of agitation or psychosis in patients with dementia when symptoms are severe, are dangerous, and/or cause significant distress to the patient” (Reus et al., 2016). The American Geriatric Society 2015 Beers Criteria for Potentially Inappropriate Medication Use in Older Adults, or Beers List, recommends that prescribers “avoid antipsychotics for behavioral problems of dementia or delirium unless nonpharmacological options (e.g., behavioral interventions) have failed or are not possible and the older adult is threatening substantial harm to self or others” (American Geriatrics Society, 2015). Side effects of antipsychotics can include, but are not limited to, cerebrovascular accidents (CVAs or strokes), parkinsonism, sedation, gait disturbance, increased cognitive decline, and pneumonia (Tampi et al., 2016). Additional adverse effects can include cardiovascular events (such as cardiac arrhythmias), metabolic effects, extrapyramidal symptoms, other infections, and falls (Steinberg & Lyketsos, 2012). Antipsychotic use even increases the risk for death (Tampi et al., 2016).

In addition to antipsychotics, there are other medications commonly used to treat NPS of dementia. Mood stabilizers, like carbamazepine, have been shown to slightly

decrease agitation in patients with dementia (Tible, Riese, Svaskan, & Gunten, 2017).

However, these drugs also come with severe side effects like hepatitis, worsening cognitive function, and severe blood dyscrasias (Kales, Gitlin, & Lyketsos, 2015).

Benzodiazepines are sometimes used to treat NPS, but they have very limited efficacy and are not recommended except for use in an acute crisis (Tible et al., 2017).

Benzodiazepines can cause adverse effects such sedation, respiratory depression, dizziness, falls, worsening cognition, and possible dependency (Kales, Gitlin, & Lyketsos, 2015). Overall, antipsychotics are the most evidence-based and effective medication used to treat behavioral and psychological symptoms of dementia (Kales, Gitlin, & Lyketsos, 2015). However, as mentioned earlier, these drugs can come with very harmful side effects and an increase in mortality (Tampi et al., 2016). There is currently no medication that effectively treats agitation in patients with dementia without the risk of severe, and possibly deadly, side effects.

Since antipsychotics carry a high risk of severe side effects, nonpharmacologic methods are often recommended as a first-line treatment of agitation in patients that have dementia (Greenblatt & Greenblatt, 2016). If nonpharmacological methods fail to decrease agitation, then pharmacological options can be explored. This is because although nonpharmacologic methods carry little to no risk for adverse effects. It is increasingly more important to examine the evidence behind these non-pharmacologic interventions.

CHAPTER 2 – Literature Review

There are many different nonpharmacologic interventions for behavioral and psychological symptoms of dementia, and specifically agitation. The evidence for these therapies and interventions varies. The problem with the evidence behind these interventions, is that there is limited research, study designs differ dramatically, and one intervention can be applied and utilized in many ways (Tible et al., 2017). This makes it difficult to generalize the results of different studies and make any conclusions about them (Tible et al., 2017). The following section will further examine different nonpharmacologic interventions that are currently being studied.

Before discussing each intervention and the evidence behind them, it is important to take note of two things. First, it is important to understand that each identified intervention is very broad. Each intervention can be applied in different ways, by different people, and for a slightly different population. Study designs also differ between studies. This again, makes it difficult to draw any specific conclusions. Second, it is important to note that because of this, the focus will not be on coming to a concrete conclusion of efficacy but on discussing results of different studies, trends in data, unique findings, and possible suggestions for practice. By focusing on these aspects, rather than trying to find a concrete conclusion that doesn't exist, the goal is to identify important findings that may otherwise be dismissed and to contribute to the discussion of how these therapies may be best applied in practice.

Individual Nonpharmacological Therapies

Music Therapy

The research that currently exists on the efficacy of music therapy is conflicting. A 2017 metanalysis of sixteen different music therapy studies came to the overall conclusion that music therapy has little to no effect on improving agitation in this population (Van der Steen et al., 2017). However, a separate meta-analysis of twelve studies concluded that music therapy moderately improved agitation in dementia (Pedersen et al., 2017). Both meta-analyses made the comment that more research was needed on the intervention (Van der Steen et al., 2017 & Pedersen et al., 2017). One of the main differences between the two systematic reviews was the use of the patient's preferred music. In the meta-analysis where eleven out of twelve studies used the patient's preferred music, the conclusion was that music interventions significantly reduced agitation (Pedersen et al., 2017). In the meta-analysis where most of the studies did not specifically involve the patient's preferred music, the intervention was less successful (Van der Steen et al., 2017).

Building on the effectiveness of preferred music, two different studies found that individualized music therapy, when delivered by a trained music therapist decreased agitation (Ridder, Stige, Qvale, & Gold, 2013 & Raglio et al., 2008). In the study performed by Ridder et al. (2013), 40 patients participated in an average of ten individualized sessions with a university-trained music therapist. In these sessions, the patient participated in improvising, singing, dancing, listening, or other activities, such as going for a walk or just talking. The goal of the music therapy session was to engage the patient, have them practice self-expression and mutual understanding, and to fulfill the

needs of the patient. It was found that during standard care the frequency of agitation increased, but the frequency of agitation during music therapy decreased (Ridder et al., 2013). The intervention examined during this specific study was not just preferred music therapy. Instead it was an intervention that included a longer period of human interaction. The intervention was also focused on the individual patient and their specific needs. This could be the reason why this particular intervention was found to be more effective than other forms of music therapy. It could have been the human interaction and focus on the patient with dementia, instead of the music, that made the intervention effective.

A more recent, meta-analysis of thirty-eight trials and 1418 participants compared the effectiveness of interactive music therapies vs. receptive music therapies (Tsoi et al., 2018). Interactive music therapies actively involve the patient by having them sing, play instruments, or constructing their own instrument. Receptive music therapy is much less interactive and easier to implement. It usually involves the patient listening to their preferred music in a quiet place. It doesn't require a trained music therapist or extra staff to administer, as it can easily be done by any caregiver. This meta-analysis found that receptive music therapy was effective at reducing agitation and behavioral problems, and that it was more effective than interactive music therapy. The study concluded by recommending that receptive music therapy be used in nursing homes and other areas in which patients with dementia may reside (Tsoi et al., 2018).

In addition to interactive and receptive music therapies, a different, and fairly unique study looked at how having a patient with dementia listen to audio tapes of the patients' families recalling happy memories (simulated family presence), listen to preferred music, or listen to a control audio tape with a random conversation, compared

to usual care without intervention (Garland, Beer, Eppingstall, Psych, & O'Conner, 2007). The study did have a small sample size ($n=30$), and only included six fifteen-minute sessions over three weeks, but it did uncover some unique results. First of all, the study found that both stimulated family presence and preferred music both decreased physical and verbal agitation, with stimulated family presence being slightly more effective. Second, and perhaps even more interesting, was the finding that the placebo tape (which consisted of nonpersonal material, such as someone reading from a gardening book in a neutral tone) decreased both physical and verbally agitated behaviors as well. In fact, the placebo tape decreased verbally agitated behaviors (29%) even more effectively than preferred music (18%) did. This finding makes it difficult to draw any conclusions about the efficacy of preferred music therapy. However, it does show that both simulated family presence, and preferred music therapy have a possibility of being effective interventions for decreasing agitation. The study also exposed the fact that even hearing a voice (or placebo tape) can have some effect at decreasing agitation, which may suggest that agitation is caused in part by the need for any sensory input and human interaction (Garland et al., 2007).

In summary, music therapy is most effective when it is individualized to the patient incorporates their preferred music (Gomez et al., 2017; & Raglio et al., 2008). It is even more effective when the music therapy session is performed by a trained music therapist that focuses on engaging the patient and meeting their needs (Ridder et al., 2013). The problem with this, especially in rural nursing homes, is that, realistically, a music therapist is not always going to be present every time a patient with dementia is displaying agitation. This makes it difficult to utilize that intervention, even though it

may be extremely effective. Although not quite as effective, utilizing preferred music would be easier to implement as it doesn't have to involve the use of a music therapist and can be administered by a caregiver. One simple recommendation that may improve the effectiveness of music therapy in practice, would be for nurses to include questions directed to the family about the patient's preferred music and about what music calmed them down in the past. Overall music therapy shows promise as an intervention to decrease agitation in patients with dementia, but more research is needed before any definite conclusions can be made on its efficacy.

Pet Therapy

The research and conclusions about the efficacy for pet therapy is also highly variable. Each study that has been performed on pet therapy and animal assisted interventions differs in their study population, methods, and, and sometimes even the type of pet used. In fact, some studies involved a robotic pet instead of a live animal (Moyle et al., 2017 & Banks, Willoughby, & Banks, 2008). Because these studies are highly variable and used different animals, most of them are discussed separately.

To begin with, a 2018 systematic review of animal assisted interventions and dementia reviewed 32 primary research articles that involved live pets (Yakimicki, Edwards, Richards, & Beck, 2018). It involved research from eight different countries and only included experimental studies. This systematic review analyzed 15 studies that related to agitation and aggression. The review found that nine out of fifteen studies observed a statistically significant decrease in agitation and aggression with animal assisted therapy. This leads us to make the conclusion that pet therapy, when it involves live animals, has the possibility to have a strong and positive effect at decreasing

agitation and aggression in patients with dementia. However, it is not effective 100% of the time, and in some people, it might not make a difference at all.

One interesting study included in this systematic review (Yakimicki, Edwards, Richards, & Beck, 2018) found that pet therapy did not significantly decrease agitation or aggression in patients with moderate to severe dementia (Majić, Gutzmann, Heinz, Lang, & Rapp, 2013). However, in that same study, the control group that received treatment as usual saw a large increase in agitation and aggression over the treatment period. This led researchers to hypothesize that although pet therapy didn't decrease agitation, it could have prevented it from progressing (Majić et al., 2013). It is notable to mention that pet therapy may offer a protective effect when it comes to agitation. Most of the studies analyzed in this systematic review either saw a decrease in agitation, or no change in agitation at all. Only one study included in the review found that animal-assisted therapy increased agitation (Nordgren & Engström, 2014).

Another important consideration of the 2018 systematic review (Yakimicki, Edwards, Richards, & Beck, 2018) is the types of animals utilized. Twelve out of the fifteen studies included in the systematic review used dogs as the intervention animal. Using dogs as an intervention animal may be effective for some people, but for others it can exacerbate allergies, cause fear, or bring back bad memories. Of the three studies that did not use dogs as the solitary intervention, one utilized fish (Edwards, Beck, & Lim, 2014), another involved horses (Dabelko-Schoeny et al., 2014) and the other involved both a cat and a dog (Kanamori et al., 2001). All three of these studies saw a decrease in problem behaviors when the intervention was used.

One of the most interesting of these three studies was the study researchers Edwards, Beck & Lim (2014) performed using fish. This study was intriguing because placing an aquarium within the direct view of residents at a nursing home is much more plausible, less expensive, is hypoallergenic, and is less time-consuming than other pet therapies such as dogs and cats. Researchers saw a statistically significant decrease in uncooperative, irrational, and inappropriate behaviors of dementia patients when they placed an aquarium within viewing distance of a dining room at a long-term care facility. The aquarium was specifically designed for residents with dementia and contained a large acrylic viewing area and brightly colored fish. Surprisingly, there are not many other studies that have looked at how having fish in an aquarium can affect agitation levels in patients with dementia. One of the only other relevant studies on this specific intervention concluded that when elderly patients with dementia eat in front of a portable aquarium, they have an increase lean body mass when compared to those who eat in isolation (Edwards & Beck, 2002). This study did not measure agitation levels, but it is interesting to see how something as simple as having an aquarium full of fish can have such significant effects on this population.

In addition to live pets, multiple studies have also looked at the efficacy of robotic pets. A lot of the studies involving robotic pets specifically involve a pet called PARO (Jones, et al., 2018, Jøranson, Pedersen, Rokstad, & Ihlebæk, 2015, Liang, et al., 2017, Mervin, et al., 2018, & Moyle, et al., 2017). PARO takes the shape and size of a white baby harp seal. It's head swivels, it can move its legs and tail, and it has tiny microphones that make the sound of a real baby harp seal (Jøranson et al., 2015). PARO is highly intelligent and interactive as it can recognize people's voices and touch and respond like

a real animal. Multiple studies have been done on PARO and its effectiveness. These studies differ in their methods and their conclusions sometimes conflict. Overall, PARO was not effective at decreasing agitation in dementia patients in the short-term (Jøranson et al., 2015, Liang, et al., 2017, Moyle, et al., 2017). However, PARO does show promise at preventing agitation from occurring in the long-term (Jøranson et al., 2015, Moyle, et al., 2017). Researchers have shown that PARO, when used in a group setting for 30 minutes twice a week, over the course of 12 weeks, can effectively decrease agitation by the end of 12 weeks (Jøranson et al., 2015). Although this conclusion is promising, other studies have shown that PARO was no more effective at reducing agitation, for any duration of intervention, than a simple plush toy (Moyle, et al., 2017). Overall, PARO shows little promise at being an effective intervention for decreasing agitation. Using a stuffed animal instead of PARO is equally effective, and costs less to incorporate into practice (Mervin, et al., 2018).

In conclusion, animal-assisted therapy shows promise as an intervention to reduce agitation in patients who have dementia. Multiple studies show that dogs can be an effective intervention (Yakimicki, Edwards, Richards, & Beck, 2018). However, this intervention can be problematic if anyone, including staff, has allergies to pets, is afraid of dogs, or have bad memories of them. As an alternative to dogs, incorporating a fish tank into a common area was shown to be effective at decreasing agitation levels in a nursing home with dementia patients (Edwards, Beck, & Lim, 2014). Robotic pets, on the other hand, and specifically PARO the robotic seal, was not supported by evidence (Jøranson et al., 2015, Liang, et al., 2017, Moyle, et al., 2017) as it wasn't any more

effective than a plush toy (Moyle, et al., 2017) and, in some cases, increased agitation levels (Jones et al., 2018).

Aromatherapy

It is difficult to make a definitive conclusion on the efficacy of aromatherapy. This is because aromatherapy can be administered in different ways, with different oils, and at different concentrations. For example, aromatherapy can be delivered with a diffuser, it can be massaged into different areas of the skin, it can be administered as a lotion, or in other ways. Some studies show that aromatherapy does not improve agitation (Burns et al., 2011, Fu, Moyle & Cooke, 2013, & O’Conner, Eppingstall, Taffe, & van der Ploeg, 2011). Other studies show that aromatherapy can be effective at improving agitation (Ballard, O’Brien, Reichelt, & Perry, 2002 & Kaymaz & Ozdemir, 2017). The problem is that many studies that examine the effectiveness of aromatherapy are performed poorly, have very small sample sizes, or are outdated. One conclusion that was consistent between studies, was that touch and human interaction was correlated with a small decrease in agitation (Burns et al., 2011 & Anderson, Deng, Anthony, Atalla, & Monroe, 2017).

First of all, it is important to note that quality research on aromatherapy and its effects on agitation in dementia patients is lacking. There are very few quality meta-analyses that exist, and the ones that do are slightly outdated and do not include more recent studies. One of the only higher quality meta-analyses is a Cochrane Systematic Review from 2014 (Forrester, Maayan, Orrell, Buchan, & Soares-Weiser). This systematic review included seven studies with 428 participants, but only two studies including 186 people had usable data. Because of this, the systematic review was unable

to make a conclusion on the efficacy of aromatherapy and concluded that additional higher quality studies were needed (Forrester et al., 2014). Of the two studies that did contain usable results in the systematic review, one found that aromatherapy was effective at reducing agitation (Ballard et al., 2002) and the other found that it was not (Burns et al., 2011). Although the two studies published different results, they also differed greatly in their methods and interventions.

Ballard et al. (2002) examined how 10% melissa oil in the form of a lotion applied to a patient's arm and face two times a day for 1-2 minutes, compared to the control of a lotion with sunflower oil that was applied in the same way. The study included 71 patients in their trial and reported that 60% of the active treatment group experienced at least a 30% decrease in their CMAI score (reduction in agitation) after the intervention. This was compared to only 14% of those in the placebo group who also saw the same decrease in their CMAI score. This led researchers to conclude that aromatherapy could be an effective treatment for agitation in patients with dementia (Ballard et al., 2002).

Although Ballard et al. (2002) found aromatherapy to be effective at decreasing agitation, Burns et al. (2011) found that there was no evidence for this. The study involved a double-blind placebo-controlled randomized trial, and utilizes 10% melissa oil that was gently massaged into the patient's hands and upper arms for one to two minutes two times a day. Researchers used the Pittsburgh Agitation Scale (PAS) and Neuropsychiatric Inventory (NPI) to measure changes in agitation and found that there were not significant differences between aromatherapy, donepezil (a medication for dementia), and the placebo in terms of reducing agitation. However, researchers did note that there was a significant reduction in agitation (18 % improvement in PAS and 37%

improvement in the NPI) among all groups at the end of 12 weeks. This led researchers to conclude that there is no evidence that aromatherapy is better than a placebo at reducing agitation, but that even something as simple as touch and human interaction may help to decrease agitation in people with Alzheimer's Disease (Burns et al., 2011).

The other five studies included in the systematic review (Forrester et al., 2014) all had a high risk of selective-reporting bias since no useable data was reported. With this risk in mind, a few of these studies are still worth a quick examination. One RCT study found that 3% lavender mist oil didn't reduce agitation when sprayed onto the participants' upper chest or when applied via hand massage (Fu, Moyle & Cooke, 2013). Another study came to a similar conclusion when they found that 30% lavender in jojoba oil had no effect on agitation when topically delivered (O'Connor, Eppingstall, Taffe, & van der Ploeg, 2013).

A more recent study on the effects of essential oils and aromatherapy used a different method of administration than previous studies and came to a fairly different conclusion (Kaymaz & Ozdemir, 2017). Researchers in this RCT split participants into an intervention group and a control group. At the end of the study a total of 14 people from each group were analyzed. The intervention group received aromatherapy via hand massage (with a mixture of lemongrass and eucalyptus oil) and inhalation (with lavender oil) in their home for 4 weeks, whereas the control group received no intervention. The study found that at the end of 4 weeks, the CMAI scores were significantly lower in the intervention group (Kaymaz & Ozdemir, 2017). Although this is a promising conclusion there are several problems with this study, including a small sample size and a lack of a placebo group. This lack of a placebo group could mean that the result of decreased

agitation could result partly from caregiver and human reaction instead of only the aromatherapy.

In conclusion, very little research exists on the efficacy of aromatherapy and its use in reducing agitation in patients with dementia. More research is needed before any conclusions can be made. Of the studies that do exist, most of them examined effects after essential oils are applied via hand massage or used as a mist and sprayed onto the body of the patient. Many of these studies concluded that aromatherapy was no more effective than a placebo at decreasing agitation (Burns et al., 2011 & Fu, Moyle & Cooke, 2013). Only two studies that were examined found that aromatherapy could decrease agitation (Ballard et al., 2002 & Kaymaz & Ozdemir, 2017). One of these studies found that applying a lotion containing 10% melissa oil to the patient's arm and face significantly decreased CMAI scores (Ballard et al., 2002). The other study found that a routine of switching hand massage (with lemongrass and eucalyptus oil) and inhalation (with lavender oil) daily decreased agitation (Kaymaz & Ozdemir, 2017), however the study did not include a placebo group and the results could be due to increased human interaction instead of the essential oils themselves. This correlation between human interaction and decreased CMAI scores was found by Burns et al. (2011) when he noted that there were decreases in agitation among both his control group and placebo group which both involved human touch and interaction to apply the oils. Overall, more research is needed on aromatherapy, and especially on diffusing oils in a common space instead of applying them to the body via mist or lotion.

Massage Therapy

Similar to aromatherapy, since most oils are either diffused or applied by massage, the efficacy of massage therapy on reducing agitation in patients with dementia is also important to discuss. Massage therapy can involve massaging different areas of the body with different oils or lotions and can involve other interventions applied along with the massage (such as aromatherapy or music). All of these different variants make it difficult to assess the efficacy of massage therapy, because each study varies drastically in how the massage is applied.

A 2006 Cochrane Library Systematic Review concluded that there was insufficient evidence to draw any conclusions about the efficacy of massage in reducing agitation (Hansen, Jørgensen, & Ørtenblad, 2006). Out of the 34 initial studies they had found, only seven of those were actual or possible RCTs, and only two met their methodological criteria. The first study included in this systematic review was published in 1986 (Eaton, Bonair, & Friedmann) and focused more on the effect of massage on nutritional intake and less on the effects on agitation. The second study included in this systematic review focused on calming music and hand massage and their effects on decreasing agitation (Remington, 2002). This study included four different intervention groups (calming music, hand massage, calming music with hand massage, and no intervention). Remington's study involved 68 nursing home residents with dementia. The study concluded that both hand massage and music therapy decreased agitation, as measured by the CMAI score. This study also found that hand massage reduced verbal agitation behaviors more than music or the combined therapy (Remington, 2002).

Besides Remington's 2002 research, there are a few other studies that illustrate that there is a possibility for massage therapy to be effective (Fung & Tsang, 2017, Suzuki et al., 2010, & Hicks-Moore & Robinson, 2008). A 2017 study showed that aroma massage with acupressure significantly decreased agitation as measured by the Chinese CMAI (Fung & Tsang, 2017). Another study concluded that tactile massage reduces aggressiveness in patients with dementia (Suzuki et al., 2010). Yet another study concluded that favorite music, hand massage, and favorite music and hand massage combined were all effective at decreasing agitation immediately following the intervention, and 1 hour after (Hicks-Moore & Robinson, 2008). All three of these studies suggest that there is a possibility that massage therapy could be effective at reducing agitation in patients with dementia.

However, in contradiction to these studies, there are also a few studies that conclude that massage therapy is not significantly effective. For example, a 2014 study found that a 10-minute foot massage intervention increased agitation. (Moyle et al., 2014). Researchers hypothesized that this increase in agitation could have been because of the unfamiliar research assistants and/or because they varied the routines of the participants. No matter what this outcome is attributable to, this finding is still important to consider. A 2017 study that was previously discussed in relation to aromatherapy, found that using hand massage, when combined with aromatherapy, did not significantly reduce agitation in patients with dementia (Fu, Moyle, & Cooke, 2013). It is important to consider that this finding could be attributed to using massage with aromatherapy, as this study did not evaluate massage by itself.

In summary, there is not enough quality research available on massage therapy to make any conclusions about its effectiveness at reducing agitation in patients with dementia. Current research shows promise that it may have some positive effect at reducing agitation (Remington, 2002, Fung & Tsang, 2017, Suzuki et al., 2010, & Hicks-Moore & Robinson, 2008), but there are also studies that conclude the opposite (Moyle et al., 2014 & Fu, Moyle, & Cooke, 2013). All things considered, more research that is higher in quality is needed before any conclusions can be made on massage therapy.

Snoezelen Therapy

Another interesting intervention that has been discussed in the literature in relation to patients with dementia is Snoezelen therapy. ‘Snoezelen’ therapy is a unique intervention that traditionally consists of a dedicated room that contains a large array of sensory-stimulating equipment, such as different colored lights, music, bubbling tubes, aromas, moving objects, tactile objects, fiber optics, strobe lights, and even image projections (Bauer et al., 2015). In general, ‘Snoezelen’ is a sensory-rich, and stimulating environment. The therapy has evolved a lot over the past several years and can now be transported to patient’s rooms on mobile carts (Bauer et al., 2015). Although this therapy is innovative and unique, not a lot of research exists on its effects. Even though this therapy can be very expensive to set-up, ranging from \$10,000-\$30,000 or higher (Bauer et al., 2015), very few studies actually examine the effectiveness of it in relation to agitation with dementia patients. Staal et al (2007) performed a randomized, controlled, single-blinded study of 24 participants and found that using Snoezelen in an inpatient psychiatric facility decreased agitation in patients with Alzheimer’s. This is when the intervention was used along with standard psychiatric inpatient care and compared to a

control group that involved structured activity sessions. Although this study showed that Snoezelen could be effective, the study had a very small sample size ($n=24$) and the participants still received standard psychiatric care which could be contributable to some of the decrease in agitation. Also, the environment was an inpatient psychiatric facility, not a long-term care center, which could have produced different results.

A different study performed by Bauer et al. (2015) compared Snoezelen therapy vs. 'common best practice' interventions which involved "psychosocial strategies such; as speaking with the resident to determine the cause of their behavior; diversion and distraction activities; engagement of the resident in meaningful and appropriate pastimes; rest; one-on-one social interactions, and pain assessment and management" (Bauer et al., 2015, p. 463). Researchers found that there was a significant reduction in behavioral symptoms for both groups after the interventions. They came to the conclusion that Snoezelen therapy does indeed reduce agitation in patients with dementia, but not any more than what they identified as 'common best practice interventions.' Although this study shows that Snoezelen might not be economical or more beneficial than other interventions, it can be used to support what these researchers identified as 'common best practice' interventions such as discovering the patient's needs, engaging in distraction activities, pain management, and one-on-one human interaction. However, similar to other studies on Snoezelen, this study also had a very little study population ($n=16$), which means that these results are not necessarily characteristic of the dementia population. A more recent pilot study came to a similar conclusion when it concluded that both Snoezelen and exercise therapy both trend towards reducing agitation, but that no firm conclusion could be made on its effectiveness (Berkheimer, Qian, & Malmstrom,

2017). However, this study also had a small sample size (n=8) and the reduction in agitation could have been plainly from the human interaction involved in both interventions instead of the therapy itself. In conclusion, more research is needed on Snoezelen therapy. Small studies have shown that it has a possibility to reduce agitation in patients with dementia (Bauer et al., 2015, Berkheimer, Qian, & Malmstrom, 2017, & Staal et al, 2007), but this reduction in agitation was similar to other interventions such as exercise therapy (Berkheimer, Qian, & Malmstrom, 2017) and ‘common best practice’ interventions (Bauer et al., 2015,). It also costs a lot of money to implement (Bauer et al., 2015), making this intervention difficult to use in practice.

Electroconvulsive Therapy (ECT)

Although this therapy is not entirely nonpharmacologic, it does carry substantially less risk than taking antipsychotic medications (van den Berg, J. F., Kruithof, H.C., Kok, R. M., Verwijk, E., Spaans, H., 2018). It is also important to note that this therapy can’t be used immediately when a patient with dementia displays agitation behaviors. Instead, it is a therapy that would be utilized to protect against further agitated behaviors occurring. ECT also requires equipment and staff members that some communities don’t have immediate access to. With that said, in a 2018 systematic review of ECT for treatment-resistant agitation and aggression in dementia found that ECT could be an effective treatment for severe agitation (van den Berg et al., 2018). In fact, 88% of the 122 participants examined had a clinically significant improvement in their agitation, and this change was often noted early in the treatment course. It is important to keep in mind however, that the studies included in this systematic review were not RCTs, because very few, if any, RCTs have been conducted on this therapy and its relation to agitation in

dementia. The systematic review examined 17 studies which included prospective cohort studies, case-control studies, retrospective chart-reviews, case series, and case report.

Another systematic review without RCTs came to a similar conclusion when it found that ECT often decreased agitation in patients with dementia (Glass, Forester, & Herminda, 2017). Unlike other interventions, it is important to understand that ECT isn't always without undesirable side effects. Most often ECT led to mild side effects (such as postictal confusion or headache) or no side effects at all (van den Berg et al., 2018).

There was only one study that reported having to discontinue ECT due to adverse events (Acharya et al., 2015). These adverse events included three cases: "delirium and skin rash, delirium secondary to urinary tract infection, and atrial fibrillation" (van den Berg et al., 2018, p. 430). With the possibility for adverse effects in mind, ECT still shows promise at reducing agitation, and these side effects were rare and usually very minimal (van den Berg et al., 2018). Overall, the research for the use of ECT in regards to agitation in patients with dementia is very promising (van den Berg et al., 2018 & Glass, Forester, & Herminda, 2017), but very limited. More studies, specifically RCTs, are needed before any conclusions can be made on its efficacy.

Baby Doll Therapy

Although not heavily researched, baby dolls are another possible intervention for agitation, specifically among female patients. Very little research exists on the use of baby dolls to calm agitation. Most of research that relates to this intervention includes cohort and observational studies, and very few, if any RCTs (Ng, Ho, Koh, Tan, & Chan, 2017). One relevant study is a systematic review of 12 published studies on doll therapy and its use in patients with dementia (Ng et al., 2017). This study came to the conclusion

that although very little experimental research exists, the therapy seems to be effective when caring for patients with dementia. The study also commented on how doll therapy has advantages over other interventions for agitation because the cost is low, the intervention is easy to carry-out, and it doesn't require any skilled therapist to implement or perform. This intervention may be more effective than others, simply because it allows people living with dementia to fulfill their need of finding a meaningful and personal attachment (Ng et al., 2017) and because it allows these individuals to step back to a time period in which they were caregivers themselves. The one disadvantage of this therapy is that some believe that it is unethical, as it causes harm to the patient by infantilizing them and causing their family possible distress (Mitchell & Templeton, 2014). Although these concerns are important to consider, this may be a situation where the benefits outweigh the costs. The international legal framework for this ethical dilemma states that the patient with dementia needs to be put at the center of the decision and encouraged to make their own choice on the matter (Mitchell & Templeton, 2014). Overall, the evidence for doll therapy is very positive, as it does have the possibility to decrease agitation with dementia. However, more research, especially randomized controlled trials, are needed before any conclusions can be made.

Reminiscence Therapy

Reminiscence therapy is another type of therapy that can be utilized with patients who are diagnosed with dementia. Similar to other interventions that have been discussed, reminiscence therapy can look different every time that it is utilized. For example, it can be done in groups or can be individualized, and it can involve different mechanisms of evoking memories. Reminiscence therapy involves communication

between a therapist or staff member and the patient. It involves having conversations about past events and experiences in the patients' lives. The goal of the therapy to bring forward memories and promote mental stimulation (Woods, O'Philbin, Farrel, Spector, & Orrell, 2018). It can involve the use of objects from the patients' lives that stimulate memories, such as mementos, videos, pictures, blankets, clothing items, or other objects (Woods et al., 2018).

Reminiscence has many probable uses in the care of dementia patients such as, improving quality of life and helping with depression. However, the focus here is on its impact on agitation. A 2018 Cochrane Library Systematic Review examined 16 RCTs and looked specifically at how reminiscence therapy affected different aspects of a patient's life, including their quality of life, mood, functioning, relationships, and their agitation or irritability (Woods et al., 2018). The meta-analysis concluded that there were no clear effects between reminiscence therapy and agitation. In other words, there was no evidence to suggest that reminiscence therapy would be effective at decreasing agitation. The study concluded that more research is needed in order to understand the effects of reminiscence therapy. Overall, there aren't very many studies on the relationship between reminiscence therapy and agitation and more research is needed.

Exercise Therapy

Exercise therapy is utilized often in the treatment of patients with dementia. This is often because exercise therapy offers physical benefits to anyone, regardless of their cognition, age, or mental status. Although exercise therapy may be effective at improving health and mobility, its relationship with improving agitation isn't as easy to visualize. To begin with, as with most other interventions, there are many different types of exercise

therapy. It can be administered for different amounts of time, by different people (staff members or trained therapists) and can involve different exercises. This makes research on exercise therapy difficult to compile and analyze. With that said, it is still important to examine the studies that do exist and consider the relationship between exercise therapy and neuropsychiatric symptoms, specifically agitation.

A 2015 Cochrane Library systematic review looked at exercise therapy interventions and their overall effect on patients with dementia (Forbes, D., Forbes, S. C., Blake, Thiessen, & Forbes, S., 2015). Although the study included 17 trials and 1,067 participants, only 1 trial (which included 110 participants) measured effects on agitation. This study showed no clear effect between exercise therapy and neuropsychiatric symptoms (Rolland et al., 2007). A different cluster-randomized factorial controlled trial came to a similar conclusion that exercise therapy did not significantly improve agitation (Ballard et al., 2016).

Despite multiple studies showing that there isn't any connection between exercise therapy and agitation, there are also multiple studies showing that it can improve these behaviors (Fleiner, Dauth, Gersie, Zijlstra, & Haussermann, 2017 & Telenius, Engedal, & Bergland, 2015). These studies differed in the amount of time that the intervention was administered and in the type of exercise utilized. However, they all involved a group exercise intervention. One study involved an exercise program that was administered three days a week (Fleiner et al., 2017). Each day involved four 20-minute exercise sessions, that each involved individually-tailored strengthening and endurance exercises. This exercise program was compared to a control group of a social stimulation program that involved playing table games with the occupational therapists in the hospital. The

study found that, when compared to the control group, participants in the exercise program saw significant improvements in emotional agitation, psychomotor agitation, and verbal aggression. No significant changes were seen with physical aggression (Fleiner et al., 2017). A different study came to a similar conclusion when they tested an exercise program that involved strength and balance training in small groups twice a week for 12 weeks (Telenius, Engedal, & Bergland, 2015). The control group consisted of patients doing leisure activities. The study found that, after 6 months, the exercise group saw a decrease in agitation when compared to the control group (Telenius, Engedal, & Bergland, 2015). Although both studies observed improvements in agitation with patients who participated in the exercise program, an initiation of such program in a long-term-care facility might be costly and time-consuming since it could require extra staff to administer the program. In addition, there would be patients with dementia that would be unable to participate in the program due to their physical condition and functioning. Overall, the evidence on exercise therapy and its effect on agitation is conflicting. With that said, there are a small number of studies that show that the intervention has promise (Fleiner et al., 2017 & Telenius, Engedal, & Bergland, 2015). More studies are needed before any solid conclusions can be made.

Art Therapy

Very little research exists on art therapy and its effects on agitation in patients with dementia. There are very few, if any randomized controlled trials on the intervention and its relationship with agitation. Art therapy can include painting, drawing, coloring, making jewelry and making other crafts. There are news articles and blog posts about art therapy being successful with dementia patients, but there are no scientific studies to back

up their qualitative claims. More high-quality research is needed before any conclusions can be made of the efficacy of art therapy.

Light Therapy

Light therapy is another intervention that has a possible relationship with agitation and patients with dementia. Light therapy involves the use of different lights (including different colors and strengths) and the duration of the treatment can vary. One of the most familiar versions of this therapy is called ‘naturalistic’ light therapy in which lights are designed to mimic the brightness of the sun throughout the day and the dawn-to-dusk transition (Forbes, Blake, Thiessen, Peacock, & Hawranik, 2014). In addition, light therapy can include light boxes, light visors worn on the patients’ heads, and even room or ceiling lights. This therapy, in theory, is meant to modify the circadian rhythms of patients with dementia, provide stimulation, and hopefully help them sleep better (Forbes et al., 2014). Although this intervention may seem promising in theory, a 2014 Cochrane Library Systematic Review found that “there is insufficient evidence to recommend the use of bright light therapy in dementia” (Forbes et al., 2014, p. 2), and that no relationship was found between light therapy and agitation and challenging behaviors. Overall, the evidence that currently exists on light therapy concludes that it has no effect on agitation, but more research is needed.

Summary of Individual Therapies

In quick summary, there are many different interventions that exist for the purpose of reducing agitation in patients with dementia. The previously discussed therapies are not the only therapies that are utilized in practice; however, they are some of the most common. The findings related to each individual therapy are shortly summarized in *Table 1* below. In general, many of these therapies have little research behind them. More research, and especially experimental research is needed on these individual therapies. Also, many of the studies that did exist on these therapies were equivocal or conflicting with other similar studies. Many of the experimental trials had a very small sample size or lacked a control group. Overall, it's hard to make any conclusions on any intervention due to the lack of quality research and the diversity of approaches. However, there were findings that were consistent throughout this literature review. For example, most interventions that were individualized for the patient were more effective than interventions that were applied to a group or not individualized. Also, interventions that involved direct human interaction or human touch were more effective at reducing agitation than those that didn't. These two findings lead into what will be introduced next, the "Unmet Needs Theory," because they both address needs that a patient with dementia might have. Overall, these individual interventions have a possibility of being effective if used at the right time, the right way, and in the right situation. Very few side effects were seen throughout these studies, and many of them showed promise at decreasing agitation.

Table 1

Summary of individual interventions from the literature review

Therapy	Conclusions
Music	Most effective if individualized, 1 on 1, if administered by a music therapist or if using the patient's preferred music.
Pet	Most interventions utilize dogs and show promise at reducing agitation. However, this may increase agitation in some and can be harmful to those with allergies. Robotic pets are no more effective than plush toy.
Aromatherapy	Little research exists. Many existing studies show that aromatherapy is not more effective than placebo.
Massage	Very little research exists. Research that does exist conflicts. But some studies show promise at decreasing agitation.
Snoezelen	Little research exists. Very expensive to implement in practice but shows promise at reducing agitation.
ECT	ECT is controversial. There are very few RCTs. More research needed, but the research that does exist shows it is very promising at reducing treatment-resistant agitation. It can be very expensive, it can't be used in the moment of agitation, and it can be hard to get in a rural area.
Baby Dolls	Very little experimental research exists and most of the research is qualitative. However, baby dolls are low cost, and this intervention doesn't require extra staff to implement. Ethics are questionable. Most qualitative studies talk about how using dolls is effective.
Reminiscence	Little research exists. Existing studies say there are no clear effects on agitation.
Exercise	Little research. Evidence conflicts. Some studies say promising at reducing agitation, others say it is no more effective than placebo.
Art	Very little to no research exists.
Light	Insufficient evidence, but existing research shows no effect on agitation

Unmet Needs

Unmet Needs Theory

Instead of looking at separate and individual interventions where research often conflicts, it may be more efficacious to look interventions that are personalized and based off the patient's needs. One way to accomplish this and design personalized interventions is to utilize the "Unmet Needs Theory" or otherwise called, the "Unmet Needs Model" (Cohen-Mansfield, Marx, Dakheel-Ali, & Thein, 2015). This theory has no official beginning in the literature, but instead seems to emerge out of a number of relevant studies that attempted to identify the etiology of agitation in patients with dementia (Cohen-Mansfield & Werner, 1995 & Cohen-Mansfield, 2000). In a quick summary, the "Unmet Needs Model" states that agitated behaviors in patients with dementia occur when the patient has an unmet need that they are trying to communicate (Cohen-Mansfield, Dakheel-Ali, Marx, Thein, & Regier, 2015). This model takes into consideration that patients with dementia, because of their disease process, have difficulty communicating their needs (Hancock, Woods, Challis, and Orrell, 2006). The patient can become agitated when they can't communicate their personal needs or meet their needs by themselves. These needs may be physical, mental, social, environmental, or relate to an inadequate level of stimulation (Cohen-Mansfield, Dakheel-Ali, Marx, Thein, & Regier, 2015) Examples of these needs include hunger, thirst, needing to use the bathroom, being too hot or too cold, feeling depressed, anxious or frustrated, needing social contact, having too much or too little stimulation, or having pain or other discomfort (Cohen-Mansfield, 2000b).

Interventions Based on Needs

Building upon this “Unmet Needs Model,” the theory is that interventions for agitation in patients with dementia will be more effective if they are specifically designed to meet the patient’s unmet need that they have difficulty communicating. This is important because not every intervention is effective for every need. This is evident in the findings previously explored for individual interventions. It was difficult to make any concrete conclusions on whether or not an intervention was effective because studies differed dramatically. They differed not only in methods, but also in their environment. This difference in environment could mean that there was a difference in needs between people of the study population, which could be why an intervention was effective for some people, but not others. This belief holds true especially when the patient’s need is physical or environmental. For example, if a resident displaying agitation is trying to communicate to the caregiver that he or she is hungry or needs to use the bathroom, then music therapy may increase their agitation. This is because it brings the patient farther away from what they need. In this case simply bringing the resident into the dining room to have a small snack, or showing them where the bathroom is, may not only decrease their behaviors, but also meet their physical need. The effect of these individualized interventions based upon the specific needs of the patient, is most thoroughly explored in a study by Cohen-Mansfield, Libin & Marx in 2007.

This study specifically looks at interventions for nonaggressive agitation. It involved 167 elderly nursing home residents with dementia and interventions were based upon a new approach called Treatment Routes for Exploring Agitation [TREA] (Cohen-Mansfield, 2000a & Cohen-Mansfield, Libin & Marx, 2007) TREA is an approach for

individualizing interventions for agitation (Cohen-Mansfield, 2000a). It involves three steps. The first step is to hypothesize the need that is causing the patient's unwanted behavior. The second step is characterizing how that behavior results from the identified need. The third, and final step, is to provide an intervention that either meets the unmet need or allows for the behavior to continue in an appropriate way if the behavior itself is already meeting that need. In summary, the TREA approach "can be viewed as a decision tree that guides caregivers through the necessary steps for exploring and identifying underlying unmet needs that contribute to agitated behaviors (Cohen-Mansfield, Libin & Marx, 2007).

In short and simple language, the TREA approach is a decision tree. At the top of the tree there is a list behaviors and possible causes. The next level of the tree lists possible interventions for each cause (Cohen-Mansfield, Libin & Marx, 2007). The relationships between specific behaviors and causes were made using previous research on what specific behaviors could mean (Cohen-Mansfield, Marx, and Wener, 1992). Researchers utilized this TREA approach and individualized interventions for 89 participants and had a control group of 78 participants. The control group received a placebo intervention that involved an in-service presentation to staff that educated them about agitation, etiologies, and possible non-pharmacological treatments. The study found that there was a greater and significant decrease in agitation for the intervention group when compared to the control group. They also found that utilizing individualized interventions for agitation increased pleasure and interest in these patients. This particular study shows that using interventions specifically designed to address the patient's unmet need may be an effective intervention at decreasing agitation. It seems to be important for

caregivers, clinicians, and other nursing home staff to search for the cause of a patient's agitated behaviors before they attempt to use an intervention.

Determining a Cause

Although determine a cause of a patient's agitation may be important, this is not an easy task. Patients with dementia have trouble communicating their needs because of their disease process. Some studies have looked at different types of agitation and the possible causes of that type of behavior (Cohen-Mansfield, 2000a) For example studies have shown that verbal agitation often results from "discomfort, loneliness, and suffering" (Cohen-Mansfield, 2000a, p. 23). Physically nonaggressive behaviors such as wandering often result from the need for stimulation or relate to the patient looking for something. Physically aggressive behaviors may correlate with "physical discomfort, delusions and hallucinations, invasion of personal space or intrusive activities by others" (Cohen-Mansfield, 2000a, p. 27). Although this research exists, it doesn't fit every person with dementia and their behaviors. Determining the cause of a patient's behavior is a difficult task. It involves using a "detective approach" to understanding the individual and involves getting to know the person, their common behaviors, and communicating with them (Cohen-Mansfield, 2000a). For example, if the patient just ate lunch and had 2 glasses of water, then a person can deduct they most likely aren't thirsty or hungry. With this patient it might be helpful to try and see if they need to use the bathroom since the caregiver knows from past experience that that is usually what they need after eating lunch. Since determining a cause is not an easy task, often a 'trial and error' and deduction method is used until agitation is decreased.

Summary of Individualized Needs-Based Interventions

In conclusion, it is common for patients with dementia to be agitated because they have a need that they cannot meet themselves (such as needing to go to the bathroom, needing stimulation because they're bored, or needing something to drink because they're thirsty). If the patient's agitation is caused by an unmet need, then the most effective intervention would be one that fulfilled that need. If the intervention does not address their need, then it is less likely to be effective. The difficulty with designing a needs-based intervention is that it can be difficult to assess what the cause of a patient's agitation is. There are some tools that may help a caregiver determine a cause, but it is also important to get to know the patient, 'play detective,' and communicate with them. A 'trial and error' and deductive reasoning method might have to be utilized until agitation is decreased. It is important to understand however, that although an intervention may work once for an individual, that doesn't always mean that it will work the next time, because their need may be different. Overall, the unmet needs theory may serve as a blueprint for building interventions that are effective at reducing and even preventing agitation in patients with dementia.

Literature Review Summary

Throughout this literature review, different interventions, and ways to choose effective interventions for agitation were discussed. First discussed, were individual interventions and the evidence behind them. Most of these interventions had very little quality research behind them, and many studies included very small sample sizes. It was also difficult to generalize any conclusions on the effectiveness of any intervention because study designs differed dramatically, and interventions differed between each

study. It was also common for two studies with very similar interventions and designs to have contradicting conclusions. This leads one to believe that the intervention may only be effective at certain times, or in certain situations. Two other findings that were consistent throughout the review were that individualized interventions were more effective than group or ‘cookie cutter’ interventions, and that human interaction and touch often led to a decrease in agitation.

These findings lead into the second point that was discussed. This point was the unmet needs theory. This theory stated that agitation in patients with dementia is often caused by the patient being unable to meet a need that they can’t communicate. This point was illustrated by a study that showed that agitation saw a statistically significant decrease when the patient with dementia was offered an intervention that met their unmet need. The problem with this approach is that it can be difficult to assess a patient’s need, and that often a ‘trial and error’ or ‘detective approach’ is needed to find the right intervention.

Tying these two findings together may offer some insight into why some of the studies on individual interventions conflicted. One of reasons that studies with similar individual interventions came to contradicting conclusions, could be because sometimes the intervention met the patient’s needs, and sometimes it didn’t. Even though the intervention wasn’t made specifically to fulfill a patient’s need, that doesn’t mean that it sometimes did.

For example, if music therapy was studied with two different nursing home populations, one that had many scheduled activities, and one that had no scheduled activities throughout the day, then the intervention is more likely to be effective in the

population that had no scheduled activities. This is because music therapy may fulfill the need of stimulation to a group that previously didn't receive any. The therapy could have increased agitation in the group with a lot of scheduled activities because the group was already over-stimulated and had a need of lower-stimulation.

This relationship between the tested intervention and the individual's needs may also be the reason why the intervention was extremely effective for some patients in the study, and completely ineffective in others. The unmet needs theory could also be why some studies saw a significant decrease in agitation in the control group and the intervention group. If the control intervention involved any form of human interaction or stimulation, it may have met the common need of social isolation or loneliness. Overall, it is important to understand that interventions are most effective if they are individualized, personalized, based off the patient's likes and dislikes, and chosen based upon meeting the patient's needs. Simply choosing a random individual intervention isn't very likely to be effective.

CHAPTER 3 – Methods

Reflecting on the previous literature review, many of the studies discussed looked at specific interventions for agitation in patients with dementia. The goal of conducting a qualitative study is to fill in a gap between what has been studied in the literature, and what is being used and is effective in practice. The goal of this study is to attempt to understand how healthcare professionals go about addressing agitation in patients with dementia, and to understand their views of what interventions they find to be effective. Another goal of the study was to discuss with these individuals what tools they believed would be helpful for them in addressing agitation. The purpose of the study was to have a better understanding of the care of people with dementia and agitation in order to make recommendations for how to improve current practices and make suggestions for future research.

Design & Process

Early in the study design process, it was decided that a quantitative survey would be utilized to assess what interventions caregivers were using in practice and their perceived effectiveness of the interventions being used. A rough draft of a survey was constructed and involved three major parts. The first part of the survey was multiple choice and required the participant to answer questions related to their position and demographics. The second section of the survey required the participant to rate via a Likert Scale (with 1 being never, and 5 being always), how often they performed specific

interventions for a patient with dementia displaying agitation. These interventions included intervening, notifying the nurse, using pet therapy, aromatherapy, massage, pain medication, antipsychotic medications, and others. The last part of the survey required the participants to rate the effectiveness of these interventions, again by the use of a Likert Scale (with 1 being never effective, and 5 being always effective). The survey was created online using PsychData. Participants for the survey were recruited by calling Midwest nursing homes and asking for them to distribute the link to the survey. The survey was live and was taken by one participant before the idea was scratched and the survey was taken down.

During the process of designing the survey, the review of current literature progressed. While combing through multiple studies, the research team decided that a quantitative survey would not adequately illustrate the picture of how agitation is being managed for these patients. The team realized that although a lot of studies looked at individual interventions, there were also studies that looked at different methods to address agitation, like the Unmet Needs Theory. Upon further consideration, the research team came to the conclusion that a qualitative and descriptive study would paint a better picture of the process of addressing agitation in patients with dementia and would allow the assessment of caregivers' perceived needs and ideas for improving the process. With that said, the quantitative survey was scratched, and the process of designing a qualitative study began.

It was decided that interviews with caregivers and health care professionals would be more effective at constructing an image of current practices, their efficacy, and tools needed for future practice. Interview questions were then designed to assess these three

areas. These questions were also designed to reflect the preceding literature review, individual interventions, and basing interventions upon perceived needs. Because the research team wanted to better understand the process of how caregivers go about addressing agitation, probing questions were included to force the participant into explaining and describing their process without much input from the interviewer. Probing interview questions were designed, but new questions were constructed during the interviews themselves based upon the feedback from the participant. The main probing interview questions are listed below in *Figure 1*.

At first, researchers attempted to recruit interview participants by calling nursing homes in the Midwest and asking them to forward information about this study to their employees. Since this method resulted in a few nursing homes willing to participate, but no interview participants that stepped forward, a different method was chosen. The re-designed method to recruit interview participants in a timely manner was a social media post on Facebook. This post was designed to make people aware of the study and the need for participants. The people who were interested in the study were asked to private message the research team member so their interest in participating in the study would be kept anonymous. Once a private message was received, the study was discussed further, and communication continued over email. Informed consent was obtained over email before the interviews began. The informed consent that was attached to the email can be found in Appendix A. After participants were recruited, each participant was interviewed over the phone by the same interviewer. These interviews were recorded on a computer and then transcribed word-for-word. After each interview was transcribed verbatim, the recordings were deleted from the computer. The identity of the participants of the study

were known only to the interviewer and first name pseudonyms were created for each participant in order to keep their participation anonymous. Special consideration was taken during each interview to allow the participant to lead the discussion. Participants were encouraged to describe in detail not only the actions they took to address the agitation, but also their thought process behind their actions. From the beginning of the creation of the quantitative survey questions, to the end of transcribing the qualitative interviews, this information-gathering process took from February 2016 to September 2018, or a total of twenty months. However, the qualitative study process began in April 2018 and data collection was finished by September 2018, and therefore was completed within six months.

Participants

This study included a total of six participants (n=6). These participants represented a variety of different healthcare disciplines. These disciplines included certified nursing assistants [C.N.A.s] (n=3), a registered nurse (n=1), a clinical education specialist (RN/MSN) (n=1), and a physical therapist assistant (n=1). All six participants were female and work directly with patients who have dementia and display agitation. Two participants worked in the hospice setting, and four worked in the long-term-care setting.

Figure 1. Prepared questions for the qualitative interview process.

- 1) *When you see a patient with dementia with agitation (such as physical or verbal aggression, or wandering) what do you do? Why?
- 2) What do you believe to be common causes of agitation in patients with dementia?
- 3) When you are around a patient with dementia who seems agitated, is physically or verbally aggressive, or is wandering, do you ever think about why they are displaying those symptoms? Do you ever try to determine the cause?
- 4) What do you think is the most common cause of agitation? Why do you think that?
- 5) Do you think that certain agitation behaviors point to a specific cause? For example: wandering could point to the physical need of using the bathroom, or hitting might point to the emotional cause of being bored?
- 6) What are a few things that you do to calm agitation in patients with dementia?
 - a) *If this probe leads to little discussion, ask about specific interventions: Music Therapy, Pet therapy, aromatherapy, hand massage, exercise therapy, going on a walk, reminisce therapy, offering pain control, blankets, food, water, offering the bathroom, talk therapy, doll therapy, distraction (such as the TV).*
- 7) Are there any methods to calming this agitation that you use that seem to work better than others? Can you think of why that would be?
- 8) Do you think that residents display agitation sometimes because they have a need that they can't communicate to you? Such as they start wandering the hallways because they really need to use the bathroom? Or they start getting verbally aggressive because they are in a lot of pain?
- 9) Do you think it would help to educate everyone who works with dementia patients on different methods that can help calm this behavior?
- 10) **Do you think having a specially designed sheet in each patient's room or a designated area in their chart that listed ways that have (or haven't) worked at decreasing agitation or even a list of specific behaviors for the patient and what they might mean, would be helpful for staff to know what to try or what might be causing those behaviors?
- 11) **Do you think that having a checklist of things to try during periods of agitation and listed interventions would help?
- 12) Are there any other comments or thoughts you have about addressing a patient with dementia who is experiencing agitation?

*Main Probe Question

**Questions that were constructed during the first interview and asked during subsequent interviews

Analysis

After the interviews were transcribed verbatim, the transcripts were analyzed by reading and re-reading the transcripts and creating codes. This process of data analysis was designed to partially reflect 'The Data Analysis Spiral' described by Creswell (2007). First, the transcripts were read several times by the interviewer. After several readings, notes were made in the margins to describe topics or ideas that were present in multiple interviews or that were discussed multiple times by the same participant. These 'notes' were often only a few words and represented key interventions or ideas.

The interviews and notes were reviewed several more times before a 'code' to better classify these key ideas was created. The purpose of developing a code was to provide for a more quantitative analysis of the interventions, methods, and key ideas that were discussed. After much consideration and many read-throughs, a 2-part coding system was developed. The first part of the code was used to classify the note into one of three categories: a cause of agitation (CAUSE), an intervention that was used to address or prevent it (INTERVENTION), or a recurring idea (RECURRING).

The second part of the code consisted of a group of words that further explained the idea. For example, when a participant mentioned having an agitated patient listen to music, the code that was created was: INTERVENTION: Music Therapy.

After the notes were all classified according to the coding system, the transcripts were read several more times, and by more than one researcher, to be sure that each code fit, and that no codes were missed. After the research team was confident that all pertinent ideas and interventions had appropriate codes, the codes were further analyzed. First, the researcher counted how many times each code appeared in total, throughout the

six interviews. Second, the researcher counted how many of the six interviews, the code appeared in. These results are discussed in the next chapter.

CHAPTER 4 – Results

Causes of Agitation

Several common causes of agitation in patients with dementia were noted during the qualitative interviews. These common causes are recorded in *Table 2*. Causes that were only mentioned during one interview were excluded from analysis, but are included in the results that can be found in *Table 6* in Appendix B. The common causes of agitation that were identified are listed below. For each common cause identified, the results will include a definition of the cause, an exemplifying quote, and the frequency in which the cause was mentioned. The identified causes are also illustrated on a concept map in *Figure 2*.

Table 2

Causes of agitation identified throughout qualitative study.

Mentioned Causes	Number of Interviews where Mentioned	Total Times Mentioned
Unmet Needs	6	16
Unmodifiable Causes	6	12
Pain	5	9
Anxiety/Fear or Frustration	3	9
Too Much or Too Little Stimulation	3	7
Uncomfortable Position	2	4

Unmet Needs

The identified cause of ‘unmet needs’ included any time that an interviewee mentioned that a patient’s agitated behaviors were caused by things such as needing to use the bathroom, being thirsty, hungry, or other needs that could be easily met, but the patient had a hard time communicating. For example, when one interviewee was asked to list off what she believed were common causes of agitation on patients with dementia, part of her response included her saying “care needs, so maybe they’re hungry, need to go to the bathroom sometimes. . .” (Rachel). Another interviewee mentioned “if [a patient with dementia] need[s] to use the restroom, they become agitated” (Ruby). In total, the identified cause of ‘unmet needs’ mentioned at some point during all six interviews and was mentioned sixteen times overall, making it the most mentioned cause.

Unmodifiable Causes

The identified cause of ‘unmodifiable causes’ included any time that an interviewee mentioned a cause that was unmodifiable. This included causes such as the time of day, the disease process itself, or a caregiver that may agitate the patient by the way that they look, sound, or resemble someone else. For example, one interviewee mentioned that “agitation seems to get worse at night” (Mikayla). Another mentioned that “its just part of the illness and process” (Amelia). In total, ‘unmodifiable causes’ was mentioned as a cause of agitation at some point during all six interviews and was mentioned twelve times overall.

Pain

The identified cause of ‘pain’ included any time that an interviewee mentioned that a patient’s pain was the probable cause of their agitation. During each interview, the participant was asked directly about what they believed to be common causes of agitation in patients with dementia. ‘Pain’ was a very common response to this question. For example, when one interviewee was asked to list some common causes of agitation, she replied “Pain is a big [cause] . . . and it can be really hard at some points to pinpoint that they are feeling pain and be able to register that” (Rachel). In total, the identified cause of ‘pain’ was mentioned at some point during five out of six interviews and was mentioned nine times overall.

Anxiety/Fear or Frustration

The identified cause of ‘anxiety/fear or frustration’ included any time that an interviewee mentioned that a patient’s agitation could be caused the fear, anxiety, or even the frustration of the individual. This also included any situations that may have led to the patient’s anxiety or frustration. For example, one interviewee mentioned that sometimes [patients are] just lonely and frustrated with their situation, or they’re just scared, they don’t know what’s going on, they can’t understand it and they just want to feel reassured that they’re safe” (Emily). Another interviewee mentioned that sometimes patients “remember the past” and “they might be looking for their spouse or their child, and that kind of triggers wandering because they are looking for that person” (Heidi). This situation of trying to find family members that aren’t there anymore could easily trigger anxiety and frustration, and therefore the agitation. In total, the identified cause of

‘Anxiety/Fear or Frustration’ was mentioned at some point during three out of six interviews and was mentioned nine times overall

Too Much or Too Little Stimulation

The identified cause of ‘too much or too little stimulation’ included any time that an interviewee mentioned that a patient’s agitation could have been caused by being under-stimulated with not enough activities to do, or over-stimulated with too much going on in the patient’s environment. For example when asked specifically about causes of agitation one interviewee mentioned asking herself “Are they over-stimulated or under-stimulated” (Rachel). Another interviewee mentioned that she thought “just being bored is a huge issue.” (Amelia). In total, the identified cause of ‘too much or too little stimulation’ was mentioned at some point during three out of six interviews and was mentioned seven times overall.

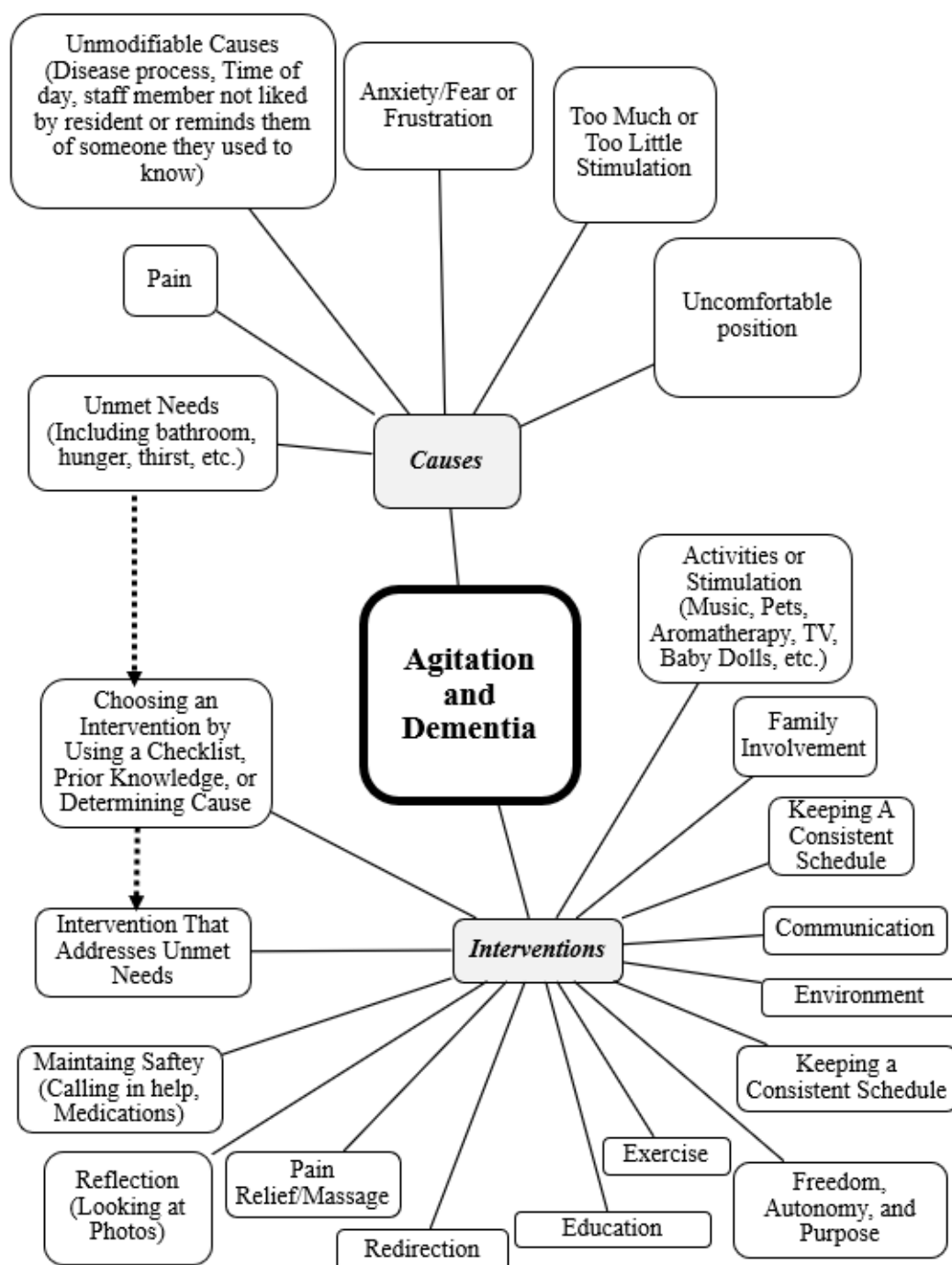
Uncomfortable Position

The identified cause of ‘uncomfortable position’ included any time that an interviewee mentioned that a patient’s agitation could have been caused by them being not being in a comfortable position and being unable to change it themselves. For example, when asked specifically about causes of agitation one interviewee mentioned asking herself “Are they uncomfortable?” (Rachel). Another mentioned how she has had patients “restless and antsy because their pants were on too tight, or kind of catawampus” (Heidi). In total, the identified cause of ‘uncomfortable position’ was mentioned at some point during two out of six interviews and was mentioned four times overall.

Other Causes

There were multiple causes of agitation that were only mentioned once during one interview. These causes included loneliness, depression, infection, and looking for something or someone. 'Not having enough staff' was mentioned as a cause of agitation three times during one interview. This was in relation to not having enough staff to keep patients busy, stimulated, and active. 'Environment' was mentioned twice during one interview and was related to the patient being in an unfamiliar environment. 'Tiredness' was also mentioned as a cause of agitation twice during one interview.

Figure 2. Concept map of results from the qualitative study as they relate to agitation, causes, and interventions. Illustrates the relationship between unmet needs, the process of designing an intervention, and using an intervention that addresses that unmet need.



Interventions for Agitation

Several common interventions for agitation in patients with dementia were noted during the qualitative interview process. These interventions and their corresponding results are recorded in *Table 3*. Interventions that were only mentioned during one interview were excluded from analysis but are included in the results that can be found in *Table 7* in Appendix B. For each common intervention identified the results will include an explanation of the cause, an, exemplifying quote, and the frequency in which the intervention was mentioned. The identified interventions are also illustrated on a concept map in *Figure 1*.

Table 3

Interventions for agitation identified throughout the qualitative study.

Mentioned Interventions	Number of Interviews where Mentioned	Total Times Mentioned
Choosing an Intervention by Using a Checklist, Prior Knowledge, or Determining Cause	6	41
Activities or Stimulation (Music, Pets, Aromatherapy, TV, Baby Dolls, Bathing, etc.)	6	36
Redirection	6	17
Education	6	16
Intervention That Addresses Unmet Needs	6	11
Exercise	6	10
Family Involvement	5	15
Communication	5	14
Maintaining Safety	4	10
Keeping A Consistent Schedule	4	6
Freedom, autonomy, and purpose	3	9
Pain Relief/Massage	3	5
Environment	3	5
Reflection	2	6

Choosing an Intervention by Using a Checklist or Prior Knowledge

‘Choosing an intervention by using a checklist or prior knowledge’ was defined as any time that an interviewee mentioned that they choose an intervention by using a mental checklist of things they have already tried or should try, or by utilizing their prior knowledge of the patient. Every time this intervention was mentioned, it meant that the interviewee was consciously thinking about how they were going to address the patient’s needs and agitation. For example, one interviewee mentioned that she notices that some residents have “physical tells,” for example “if they are shifting or agitated” (Rachel). Another interviewee, when talking about how she decides upon choosing an intervention, mentioned that “you kind of go through [a] checklist of what could be happening” (Amelia). Overall, this intervention involved using a mental checklist or prior knowledge, agreeing that a physical checklist would be helpful, or consciously thinking about choosing an intervention. In total, this intervention was mentioned at some point during all six interviews and was mentioned 41 times overall. This makes this intervention the most mentioned intervention during this specific study.

Activities or Stimulation

The identified intervention of ‘activities or stimulation’ was defined as any time that an interviewee mentioned that in order to calm a patient’s agitation, they tried to involve the patient in an activity or provide some form of stimulation. This included any interventions that involved music, pets, aromatherapy, turning on the TV, having a baby doll, Snoezelen, and other forms of stimulation. For example, when asked about interventions for agitation, interviewees mentioned “turning on the TV for a couple of minutes,” “activities that would help stimulate [the patient] mentally and . . . physically”

(Rachel) and “light background music” (Emily). In total, this intervention was mentioned at some point during all six interviews and was mentioned 36 times overall. It was the second most mentioned intervention between the six interviews.

Redirection

The identified intervention of ‘redirection’ was defined as any time that an interviewee mentioned that in order to calm a patient’s agitation, they tried ‘redirect’ the patient by getting them to focus on something else besides whatever was making them agitated. For example, when asked about interventions to address agitation interviewees often mentioned redirection specifically. One mentioned “diversional activities” (Heidi). Another interviewee mentioned a specific situation. She recalled that “if you see [a patient] getting frustrated about a task you want them to do and you say ‘Oh – who’s in that picture over there? Where did you get that knick-knack from?’ . . . and that can be a really good way sometimes to redirect them.” (Emily). In total, this intervention was mentioned at some point during all six interviews and was mentioned seventeen times overall.

Education

The identified intervention of ‘education’ was defined as any time an interviewee mentioned that any type of education, instruction, or training would be helpful for reducing agitation. Unlike other listed interventions that are directed towards the patient, ‘education’ was an intervention directed towards staff members and patients’ families. During the interviews, participants were asked directly if they believed that it would be beneficial to educate every staff member who works with dementia patients, including housekeepers, dietary staff, etc., on possible methods to address agitation. Every single

participant agreed that this type of interdisciplinary education would be helpful. One interviewee responded to this question by agreeing that this type of education would be helpful and explained “I think some of them (non-nursing staff) might say up front like “why do I need this type of information?” But too, I think especially in long term care they are just as much seen in the hallways and in the patient’s rooms [as everyone else]” (Heidi). One interviewee mentioned that she thinks it’s important that “people who work in places with people that have dementia . . . take a class more about dementia just so they know that it affects everyone differently” and that you have “to find a way (to calm their agitation) that works for them” (Ruby). Education was also mentioned in relation to patient’s family members. One interviewee when asked about the importance of education replied “yes, especially even families too” (Emily). In total, this intervention was mentioned at some point during all six interviews and was mentioned sixteen times overall.

Intervention That Addresses Unmet Needs

An ‘intervention that addresses unmet needs’ was defined as any time that an interviewee mentioned that they acted upon a patient’s agitation by trying an intervention that would attempt to meet a patient’s possible need. For example, one interviewee was asked if there was a specific way that she goes about finding a cause of a patient’s agitation. Included in her response to this question she mentioned that “first thing first, [I] take [the patient] to the bathroom, because a lot of times they’re agitated because they need to use the bathroom” (Rachel). This was included as an ‘intervention related to an unmet need’ because the interviewee’s response included a cause (need to use the

bathroom) and an intervention (toileting). In total, this intervention was mentioned at some point during all six interviews and was mentioned eleven times overall.

Exercise

The identified intervention of ‘exercise’ was defined as any time that an interviewee mentioned that in order to calm a patient’s agitation, they tried involving the patient in any version of physical activity. Most often, the interviewees mentioned bringing the patient on a walk. For example, one interviewee told a story about a patient who frequently gets agitated and can get aggressive. This interviewee mentioned that one thing that both she and her coworkers try to do in order to calm the patient is suggest to him “let’s go for a little walk” (Ruby). Another interviewee mentioned that when a patient is agitated, she asks herself “Do they want to go for a walk? Do they need to be wore out a little bit?” (Mikayla). This same interviewee also mentioned that she like to take her patients “for a walk after supper before they go to bed” (Mikayla). In total, this intervention was mentioned at some point during all six interviews and was mentioned ten times overall.

Family Involvement

The identified intervention of ‘family involvement’ was defined as any time that an interviewee mentioned that they tried utilizing the patient’s family members in any way, to calm, or even to prevent a patient’s agitation. This included anytime that a family member was (1) consulted as a preventative measure before agitation occurred, (2) received education about agitation, or (3) was used to in an attempt decrease a patient’s agitation. For example, one interviewee mentioned that they “try to ask families what will help” with agitation (Ruby). Another interviewee mentioned that she really likes it “when

families write down [the patient's] home needs and their home schedules, and little things that they tried that they know work" (Mikayla). This interviewee also mentioned that it is ideal for families to be with agitated patients, but "that it's not always possible" to do so (Mikayla). Another interviewee mentioned educating these families on agitation and what to do when their loved one begins to become agitated (Emily). Another mentioned asking the family members about the patient's likes and dislikes in order to better decide upon an intervention which may work (Mikayla). In total, this intervention was mentioned at some point during five out of six interviews and was mentioned fifteen times overall.

Communication

The identified intervention of 'communication' was defined as any time that an interviewee mentioned that in order to calm a patient's agitation they tried talking with the patient, comforting or consoling them, or engaging in conversation with them. Also included in the definition of this intervention was any time that an interviewee gave tips about how to communicate with the patient and de-escalate their agitation. For example, one interviewee when talking about communicating with agitated patients explained, "If they're in a wheelchair . . . get down to their level so you're not looking down at them and they're looking up at you because, it's kind of like you're just dominating over them and they tend to get more agitated" (Ruby). Another interviewee when asked about the first things she does when she sees a patient with dementia agitated explained that "sometimes it's simply talking to them" that helps (Rachel). Overall, 'communication' was mentioned at some point during five out of six interviews and was mentioned fourteen times overall.

Maintaining Safety

The identified intervention of ‘maintaining safety’ was defined as any time that an interviewee mentioned that an intervention was specifically chosen to maintain the safety of the patient, staff, and/or others. This included interventions such as giving medications, recruiting others to help with a situation, maintaining a safe environment, and walking away from the situation when necessary. For an example, one interviewee mentioned that “safety is basically the biggest concern with this population and . . . sometimes you will have to, for safety, give them lorazepam (a sedative medication) or something” (Heidi). In relation to recruiting others to help with a situation, one interviewee mentioned that sometimes she “would have to get [a] C.N.A. and eventually . . . a nurse” (Amelia) to help manage an episode of agitation. Another interviewee mentioned that sometimes “you have to make sure [the patient] is safe in [their] environment, and you just walk away” (Ruby). In total, the intervention of ‘maintaining safety’ was mentioned at some point during four out of the six interviews and was mentioned ten times overall.

Keeping A Consistent Schedule

The identified intervention of ‘keeping a consistent schedule’ was defined as any time that an interviewee mentioned that keeping a patient on a consistent schedule helped reduce agitation. For example, one interviewee mentioned that sometimes families will “have a schedule at home that we can kind stick to that schedule as much as possible so that we can decrease the chance for agitation” (Mikayla). Other interviewees mentioned that “knowing their schedule helps” (Rachel) and that “it’s a really big thing to try and

keep people on a regular schedule” (Emily). Overall, this intervention was mentioned at some point during four out of six interviews and was mentioned six times overall.

Freedom, Autonomy, and Purpose

The identified intervention of ‘freedom, autonomy, and purpose’ was defined as any time that an interviewee mentioned any action that allowed the patient to (1) act without restraint, (2) make their own decisions, or (3) feel a sense of belonging and purpose. One interviewee mentioned that sometimes it helps to “give [patients] an option so that they feel they’re in charge somewhat of the choice” (Emily). The same interviewee also mentioned that “finding things that people can do or help out with [can] give them a feeling of worth, and purpose, so that they’re not just there being taken care of like invalids” (Emily). Overall, the intervention of ‘freedom, autonomy, and purpose’ was mentioned at some point during three out of six interviews and was mentioned nine times overall.

Pain Relief/Massage

The identified intervention of ‘pain relief and massage’ was defined as any time that an interviewee mentioned that in order to calm a patient’s agitation, they tried relieving the patient’s pain or giving them a massage. For example, when asked about interventions for agitation, one interviewee responded “massages . . . like if they’re having some pain . . . or they’ve been known to have pain and they can’t express that” (Rachel). This same interviewee also mentioned later that she often gives back massages as a way to relieve agitation and pain, and that often she believes that the intervention is successful. In total, the intervention of ‘pain relief/massage’ was mentioned at some point during three out of six interviews and was mentioned five times overall.

Environment

The identified intervention of ‘environment’ was defined as any time that an interviewee mentioned that in order to calm a patient’s agitation, they tried changing something in the patient’s environment. This included interventions such as reducing environmental stimuli (dimming the lights, turning off the TV, etc.), increasing stimulation, or making the environment more familiar. For example, when asked about ways to reduce agitation, one interviewee reported that she often tries to “dim the lights a bit or turn off excess noise” or “turn on a TV for a couple minutes” (Rachel). In total, this intervention was mentioned at some point during three out of six interviews and was mentioned five times overall.

Reflection

The identified intervention of ‘reflection’ was defined as any time that an interviewee mentioned that in order to calm a patient’s agitation, they tried having the patient reflect upon their past, either by looking at old photos, or by having a conversation about their past life. For example, one interviewee mentioned that she has seen “people be calmed by old photos” and that that some patients like to “talk a lot about their careers” (Emily). Overall, this intervention was mentioned at some point during two out of six interviews and was mentioned six times overall.

Recurring Idea

Everyone is Different

Throughout the interviews, there was one recurring idea that was mentioned during multiple interviews but wasn't directly a cause or an intervention. This recurring idea was that everyone with dementia is unique, and therefore causes of agitation are unique to the individual, and interventions must be specifically designed for the individual as well. For example, one interviewee mentioned that "each person's dementia, or mental affliction usually is unique to them so the care must be unique to them as well." (Rachel). Another interviewee mentioned that "every resident that I have seen is all different" (Ruby). Overall, this recurring idea was mentioned at some point during five out of six interviews and was mentioned nine times overall.

CHAPTER 5 – Discussion & Conclusion

This study illustrated how current caregivers and staff address agitation with patients who have dementia in the clinical setting. Throughout the interview process, several key causes, interventions, and ideas were highlighted. The frequency in which these causes, interventions, and ideas appeared during the interview process was previously noted in Chapter 4. Throughout this study, interviewees brought forth new ideas, gave their input on what they feel would be useful in practice, and told stories of situations they have experienced in the past. The following is a discussion of the results and ideas collected from the interviews, along with recommendations for future practice. Limitations of this study and recommendations for future research are also included.

Causes

Throughout this study, there were a few mentioned causes of agitation that were repeated multiple times during multiple interviews. Only three causes were mentioned in four or more interviews, and only six causes were mentioned in more than one interview. This was much more consistent than the interventions that were identified throughout this study, as there were fourteen interventions that were mentioned in more than one interview. This could mean, that it is easier for caregivers to agree upon the causes of agitation than it is for them to agree on an intervention to treat it. It could also mean that there is a greater number of interventions for agitation than there are causes of it. This

could be because it is extremely difficult to find interventions that work to calm a patient's agitation.

Unmet Needs

'Unmet needs' was the most commonly identified cause of agitation throughout this study. Although it was very broadly defined, it was mentioned very frequently as a cause of agitation. Most often, interviewees mentioned that patients with dementia can have agitation that results from needing to use the bathroom. They also mentioned that when a patient is wandering it could be because they are looking for a bathroom and can't find one. Another interviewee mentioned that patients often become agitated when their sleep schedule gets thrown off. Other mentioned needs included hunger and thirst. Another recurring idea was that these patients can't always verbally communicate their needs, which can make them more agitated. This cause aligns directly with the previously mentioned "Unmet Needs Model" which stated that agitation can sometimes be caused by an unmet need that the patient is trying to communicate (Cohen-Mansfield, Dakheel-Ali, Marx, Thein, & Regier, 2015). Understanding that 'unmet needs' are a common cause of agitation could lead to the better design of interventions for agitation. Since 'unmet needs' are a common cause, agitation might be better treated if an intervention is chosen to meet the unmet need that that patient is having. This idea is explored in the discussion of interventions.

Unmodifiable Causes

The second most mentioned cause of agitation was ‘unmodifiable causes.’ Unlike other causes, this cause doesn’t necessarily fit with the “Unmet Needs Model” because it is saying that sometimes agitation doesn’t have a direct cause that can be easily modified. However, unmodifiable causes could be a possible explanation for why it can sometimes seem impossible to find any intervention that decreases agitation. Sometimes agitation could simply be caused the time of day, or the fact that their disease is progressing. Unmodifiable causes also make it more difficult to design an intervention to address agitation, because a person can’t treat what is causing it. Maybe then, this is where interventions such as music therapy, aromatherapy, and other activities can help agitation by creating an overall sense of calm or stimulation.

Pain

The third most mentioned cause of agitation was ‘pain.’ This cause could have almost been combined with the ‘unmet needs’ cause because pain relief is a need that can’t always be communicated. However, it was kept separate in order to observe how often pain itself is causing agitation. Five out of the six interviewees in this study mentioned how pain can often cause a patient with dementia to become agitated or begin to act differently. It was interesting how directly after some of the interviewees mentioned this as a cause, they also mentioned that it can be difficult to tell whether or not a patient having pain and to be able to tell where their pain is, if they are having it. If pain is a common cause of agitation in patients with dementia, it isn’t easy to assess. And because it can be difficult to assess, it can be hard to treat. Nonpharmacological treatments can always be attempted if the patient is suspected of having pain. For

example, massage, relaxation, heat, and ice may lead to pain relief, or may calm agitation caused by something other than pain because the intervention isn't specific to pain.

However, pharmacological methods of treating pain are very specific and can sometimes carry harmful side effects. However, they may also be more effective in treating pain, so they are still of importance.

This fact, along with the fact that more than one interviewee mentioned that pain can be difficult to assess, leads to the idea that there needs to either be more education about existing methods of assessing pain in patients with dementia, or a better way to easily assess it. With that said however, the people who did mention that pain can be difficult to assess were C.N.A.s and were probably not trained on how to assess a patient's pain, because it isn't defined as a part of their professional role. Although pain assessments are not within a C.N.A.'s scope of practice, they are the people who are with these patients most of the day, especially in a long-term-care setting. These people are also most often the first to recognize that a patient is agitated. For this reason, it might be beneficial to at the least, educate C.N.A.s on how to recognize signs that the patient may exhibit if they are having pain. This way, if C.N.A.s do suspect that a patient is having pain they can alert someone who can better assess the patient's pain, such as a nurse. Overall, pain was a commonly mentioned cause of agitation. In the future, it could be helpful to educate all clinical staff, including C.N.A.s on common signs that a patient with dementia could exhibit if they are having pain. This could help not only by treating agitation, but also by increasing the patient's quality of life by better treating their pain and offering comfort.

Anxiety, Fear, and Frustration

‘Anxiety, fear or frustration’ was mentioned during three interviews as a common cause of agitation. Most interviewees gave an example of what caused the resident to be scared, anxious, or frustrated when they listed this as a cause. One interviewee mentioned that asking the patient to do a task that may be hard for them can cause them to become anxious and agitated (Emily). She also mentioned that when a patient is aware of their own deficits, they can feel like they have no control over their situation which can also cause anxiety and agitation. Another anxiety causing situation might be that the patient is not understanding what is being asked of them or doesn’t have an understanding of what’s going on around them (Emily). The cause isn’t always preventable, or even treatable, but there are certain steps that can be taken to address agitation that is related to anxiety and frustration. First, clinical staff could take their time explaining tasks in easy to understand language, or even better, by demonstrating the task themselves. Second, staff could try to give patients options whenever possible. For example, a staff member could ask a patient whether they want to wear the blue or the red shirt today, whether they want orange juice or apple juice for breakfast, or whether they want to go on a walk or play beanbags. Giving a patient a limited number of options multiple times during the day, gives them a sense of control, but doesn’t overwhelm them with choice overload. Giving the patient a sense of control could lead to decreased agitation related to frustration. Lastly, in addition to giving patients choices, staff could better psychologically support the patient by telling them that they are doing a good job when completing a task. This positive feedback could lead to less anxiety about not being good

enough and could possibly reduce agitation. Collectively, these suggestions may lead to better preventing and treating agitation related to anxiety and frustration.

Too Much or Too Little Stimulation

‘Too much or too little stimulation’ is another cause of agitation that was mentioned during multiple interviews. Most often, the interviewee mentioned that both overstimulation and understimulation can cause agitation. A few interviewees didn’t mention overstimulation and just mentioned that patients are often bored and under-stimulated. The helpful thing about these specific causes, is that the environment can easily be altered to reduce agitation. Over-stimulation can easily be addressed by dimming the lights, turning off the TV, reducing background noise, and limiting interruptions. According this specific study however, under-stimulation seems to be more problematic and present than over-stimulation. This is likely since staff is often busy assisting other patients and has little time to interact with every patient for a prolonged period. In order to address this cause, it might be helpful for staff to design activities for these patients to complete throughout the day. In addition, staff could place patients in a common area where they can more easily see what is going on around them. This added stimulation of observing their environment could be enough stimulation to reduce and prevent agitation related to under-stimulation. Overall, the causes of too much or too little stimulation can both easily be addressed and involve interventions that are easy to attempt when trying to reduce a patient’s agitation.

Uncomfortable Position

‘Uncomfortable Position’ was another cause of agitation that was mentioned during multiple interviews. This cause of agitation could be easily fixed by simply making sure that the patient is comfortable, that they are repositioned if necessary, and that their clothes are on straight. Even though this cause of agitation might be somewhat difficult for a patient to communicate, it is something that could be easily assessed by the caregiver, and easily resolved.

Other Causes

Other mentioned causes of agitation included not having staff, an altered environment, tiredness, loneliness, depression, infection, and looking for someone. ‘Not having enough staff’ was closely related to under-stimulation, as the interviewee that mentioned this as cause repeated that she wished she could do more to stimulate her patients with activities and spend more time with them, but there wasn’t enough staff to do so (Amelia). ‘Environment’ was related to the patient being in an unfamiliar environment. The interviewee who brought up this cause suggested that families bring items from home, such as a pillow or blanket, in order to help the patient, feel more at home (Mikayla). ‘Tiredness’ could be addressed by attempting to assist the resident to have a more normal sleep schedule, allowing them time to rest, and creating an environment that is conducive to sleep. ‘Depression’ may not be easily addressed, but could possibly be treated by another healthcare professional, such as a psychiatrist, or by nonpharmacological methods. It was also mentioned that ‘infection’ could be a cause of agitation. In this case agitation could be a symptom of a medical condition or disease. If a patient is not normally restless or agitated, this might be a cause to consider. The last

cause of agitation that was mentioned was ‘looking for someone.’ This cause was closely related to anxiety and frustration, because it involved the patient actively looking for a family member, such as a spouse, parent, or child. Although this relative may no longer be alive, this cause could be addressed by assuring the patient that the person they are looking for is safe and at home. This may not always work to calm their agitation, and in some cases may make it worse if they believe that that person is supposed to be there. However, it could be effective in some cases.

Interventions

Throughout this study, there were many different interventions for agitation that were identified. Fourteen interventions, some of which were very broad, were mentioned in more than one interview. There were eight interventions that were mentioned in five or more interviews. Interviewees mentioned a wide array of interventions to address agitation but could never really depict a very organized way of determining a cause or coming up with an intervention. This leads to the conclusion that a more organized way of addressing agitation is needed. In order to design an organized way to address agitation, common interventions that are used to address agitation must first be discussed. Following is a discussion of interventions that were frequently identified throughout the interview process.

Checklist, Prior Knowledge, or Determining Cause

As mentioned previously, the intervention of ‘choosing an intervention by using a checklist, prior knowledge, or determining cause’ was not necessarily an intervention, but more of a method used to identify possible effective interventions. It was closely related to the ‘Unmet Needs Model’ (Cohen-Mansfield, Marx, Dakheel-Ali, & Thein, 2015)

because it often involved going through a mental checklist of what the patient could need and how that need could be met (checklist and determining a cause). This intervention could also involve a staff member knowing the patient well enough to anticipate their needs (prior knowledge). The reason that this intervention was mentioned 41 times during the interview process could be related to the fact that there were probing questions that asked directly about the interviewees' thinking process. A question was asked specifically about what the interviewees thought about when coming up with an idea of how to address agitation. There were also probing questions that asked about whether or not having a physical checklist of things to try would be helpful, and about whether keeping track of which interventions have worked in the past would be beneficial. Although these probes were included, most interviewees brought up the topic by themselves, not just when responding to these questions. The following is a further discussion of the three subcategories: using a checklist, keeping track of what has worked in the past, and determining a cause.

Checklist. Looking specifically at the probing questions, most interviewees agreed that having a checklist, that included common causes of agitation and some ways to address it, would be helpful to help calm a patient who is agitated. All six interviewees agreed that having a physical checklist of things to try, or different interventions, would be helpful. This idea of creating a checklist is further discussed in the 'Summary of Recommendations and Actions' and in *Figure 3*. This is because in order to further discuss a creation of such a checklist, there must be an understanding of all the mentioned causes and interventions that might be important to be included in its design.

Keeping track of what has worked in the past. As for the probing question about keeping track of which interventions have been successful in the past, the responses were just as absolute. The question asked about whether or not having a sheet in each patient's room or a designated area in their chart that recorded behaviors and interventions tried would be helpful (See *Figure 1*, Question 10). Every interviewee agreed that it would. However, some interviewees also brought up some problems and suggestions with the idea. One suggestion was to involve the family with the process of defining the patient's agitation behaviors (Ruby, Mikayla), keeping track of their likes and dislikes, or even recalling the schedule the patient followed at home (Mikayla, Emily). Another suggestion was being able to have access to this certain type of information from the patient's room instead of having to find a computer further away (Rachel). One interviewee mentioned how sometimes this information gets written in a subjective note in the patient's chart (Emily). However, not every clinical staff member always has access to these notes, and sometimes it can be hard to comb through them to find something about the patient's dementia and what might help in the moment. Another interviewee mentioned that this type information would be especially helpful for newer staff, and even staff floating from other units, who don't know the patients quite as well (Amelia).

However, as mentioned earlier, there were also problems that arose with this idea. One interviewee mentioned a problem with HIPPA. She stated, "as far as HIPPA goes, everyone needs to be careful about what information is placed in the room or elsewhere" (Emily). This does create a problem with keeping track of behaviors with a sheet in the room, because people who shouldn't have access to the patient's information might be

able to see it. With that said however, several creative ways could be designed to circumnavigate this obstacle. Recommendations for this specific intervention are further discussed in the ‘Summary of Recommendations and Actions.’

Determining cause. Along with choosing an intervention by using a checklist and prior knowledge, interviewees also mentioned that they try to determine causes of agitation. This was, in some interviews a probing question. The question was whether or not the interviewee frequently tries to determine the cause of agitation before coming up with an intervention. Two interviewees however, talked about this before the question could even be asked (Ruby & Emily). In fact, both interviewees mentioned this in their first sentence after the first interview question was asked. For example, when asked when asked ‘When you see a patient with dementia that is agitated what do you do and why?’ one interviewee responded right away, “Well it depends on why they’re agitated” (Emily). The other interviewee responded, “It’s kind of a quick thinking process you do, you figure out, okay . . . what’s this resident like, you think about their personality, and everything that can cause their aggression, or agitation” (Ruby). Besides these two interviewees that didn’t require the probing question about determining a cause, every other interviewee agreed that they do consciously think about the cause of agitation as well. It may be important to educate staff on the importance of finding a cause, as this act may lead to a more individualized and more effective intervention.

Activities or Stimulation

Moving on from discussing checklists, prior knowledge, and determining causes, another very broad intervention that was mentioned very frequently during the interview process was ‘activities or stimulation.’ As mentioned earlier this intervention involved music, pets, aromatherapy, turning on the TV, having a baby doll, Snoezelen, or any other activity that stimulated the patient. These activities were grouped together because they all involved, in some way or form, stimulating the patient. These activities were discussed widely in the literature review as a part of this study, so it was intriguing to see what clinical staff thought of these interventions and their effectiveness. Included in each interview, were separate probing questions about some of these therapies (including music therapy, aromatherapy, and pet therapy) and their perceived effectiveness. Most of the interviewees did not bring up these specific therapies unless they were directly asked about it. These probing questions could be why this specific intervention was mentioned so many times. However, the occurrence was only counted if the interviewee agreed that they had used or seen the intervention, and they thought that it was effective. Since these therapies were not brought up often without probing, it could mean that these therapies aren’t very effective in practice, at least in the sense of addressing the agitation as it is occurring. Interviewees were more likely to mention simple activities such as turning on the TV, than they were to mention music, aromatherapy, or pet therapy. Although these therapies are grouped together in the results of the interviews, they will be separated in this discussion in order to further examine the perceived effectiveness of each one.

Music. Between music therapy, aromatherapy, and pet therapy, music therapy seemed to be the most effective at reducing agitation according to this specific study. With that said, this intervention was only mentioned once without a probe. Every other time this intervention was mentioned, a probing question about music therapy preceded it. When the probe was included, the interviewees agreed that the intervention was effective at reducing agitation. This could mean that music therapy is used sometimes in practice, but isn't always used in the moment of agitation, but rather as a way of preventing it. It also could mean that music therapy is used more often for relaxation, or improving quality of life, and that reducing agitation might be a pleasant plus. When the interviewees did talk music therapy, they recounted patients that would sing along to the music that was being played (Ruby), patients that listened to music that they used to listen to at home (Mikayla), the use of the Snoezelen therapy (Emily), light background music (Heidi), and music that was era-specific (Heidi). One interviewee mentioned that its effectiveness really depends on the patient. She talked about how patients with music backgrounds might respond better to music therapy than those without a music background (Mikayla). Another interviewee talked about how it helps if family assists in picking out the type of music to play (Rachel). These statements well reflect what was discussed in the literature review on music therapy, where it was determined that it is most effective if individualized for the patient.

Aromatherapy. Only 3 interviewees mentioned that they had used aromatherapy previously and that it might be successful in practice. The other interviewees mentioned that they hadn't seen aromatherapy used in practice, or that they believed it wasn't effective to reduce agitation. Of the interviewees that thought aromatherapy was effective, one mentioned that it was at times effective at calming one of her patients who normally yells from her room (Ruby). Another mentioned that aromatherapy is used in their facility, and that she is a big believer in it (Mikayla). The other interviewee mentioned that her facility uses lavender aromatherapy (Emily). Overall, aromatherapy was only mentioned as being effective three times, and it was only mentioned if the interviewee was specifically asked about it. One interviewee mentioned that it might not be effective for older people with dementia because "sometimes smells maybe aren't as strong to them" (Rachel). These findings reflect the conclusions from the literature review that found that aromatherapy was somewhat effective at reducing agitation in some cases, but not effective at all in others.

Pet Therapy. Similar to aromatherapy, no interviewee brought up the intervention without a probe specifically about pet therapy. Even with the probe, only three interviewees talked further about pet therapy and its effectiveness. One interviewee mentioned that their facility brings in dogs and cats, and that she believes the therapy is effective at calming confused patients (Mikayla). Another interviewee mentioned how she sees that some patients absolutely love pet therapy, but that other patients don't respond well to it (Rachel). The other interviewee mentioned that the therapy can be calming and relaxing (Heidi). Again, these results reflect the literature review which mentioned that pet therapy can be effective for some patients, but not others.

Other Activities. Other activities that were mentioned as part of this intervention included coloring pages, crossword activity books, reading magazines and books, bathing, interacting with baby dolls, gardening, facility outings, folding towels or sweeping, and turning on the TV. Some interviewees mentioned activities in general. One interviewee mentioned involving the patient in an activity that stimulated them mentally and physically (Rachel). Another mentioned placing the patient in a common area where they could be stimulated by the interactions going on around them (Heidi). One interviewee told a story of a unique activity. She explained that she has a few patients who really like to do handy stuff, and that someone bought these patients a “little tiny tool set” with “pipes that that can be put together” (Ruby). She also mentioned how one of her patients like to sweep and has “his own little broom that he pushes around everywhere.” These activities and interventions were all brought up without specific probing questions. Perhaps these activities, that are specifically designed for each patient and their likes and dislikes, are more effective at reducing agitation. If this is the case, this finding would reflect the literature review as well, which concluded that any intervention is more effective if it is individualized for the patient.

Redirection

Moving on from activities and stimulation, ‘redirection’ was another commonly mentioned intervention. This intervention was often one of the first things that each interviewee mentioned when asked about what they do when a patient with dementia becomes agitated. This is an easy intervention to try each time, and doesn’t require any extra staff, materials, or much time. It involves trying to change the subject or the environment in an effort to ‘distract’ the patient from what is currently making them

agitated. For example, one interviewee talked about how she tries to stop agitated patients with dementia that may be trying to wander and leave the facility. She recounted that if she needs to “divert them from trying to leave or something [she’ll] be like ‘hey will you color me this picture, or can you help me find this word in this puzzle?’” (Ruby). By asking the patient for help and involving them in an activity she ‘redirects’ them from their agitation and puts their focus elsewhere, on the picture or puzzle. As with any intervention, redirection doesn’t work all the time, but according to this study, it seems to be something that is tried very frequently. This finding is most likely because the intervention is easy to carry out. Although it can be effective, ‘redirection’ doesn’t always address the root of the patient’s problem. For example, if the patient is looking for a bathroom and you redirect them to fold towels, their agitation may decrease for a few minutes, but will re-surface when they realize that they still have to go to the bathroom. In summary, redirection seems to be an important intervention to try during episodes of agitation. With that said however, it is also important to remember that it doesn’t always address the underlying problem.

Education

‘Education’ was another intervention that was brought up frequently during the interview process. This could have been because there was a specific probing question about it. However, an occurrence of this intervention was only noted if the interviewee agreed that it would be helpful. Unlike other interventions, ‘education’ was an intervention directed towards staff and families, not the patient.

Specifically, one question that was asked was whether or not the interviewee thought that it would be helpful to educate everyone who works with dementia patients

on the disease and different methods to calm or prevent agitation. This would include clinical staff, dietary, housekeeping, activity directors, and others. All six interviewees agreed that this intervention would be helpful. One interviewee responded to this question by saying “Absolutely, yes, especially even families too” (Emily). She also gave a hypothetical scenario portraying how this type of education might serve as useful. She explained:

You mentioned dietary – yeah, even those people need that information because they [may not] understand, you know, you give Bob a hot chocolate one day when he really wanted tea or whatever, how much that’s going to upset him. It may not be a big deal to me or you, but that’s very frustrating to him. And that can cause behaviors or agitation down the line. So everybody should be aware of how you approach that. (Emily).

Other interviewees talked about how it would be helpful if all staff had a “basic knowledge” of dementia, and how these patients can become easily agitated. One interviewee brought up a relevant point when she said that some employees may wonder why it is beneficial for them to get this type of education (Heidi). However, she also mentioned that it is important for everyone in a setting with dementia patients to understand how to respond to behaviors because, it is likely that, at some point, everyone will be around a patient that displays agitation.

Besides the question about interdisciplinary education, some interviewees mentioned education as an intervention before the probing question was asked. Others elaborated on the probing question and talked about education for families. Educating families on the prevalence of agitation in patients with dementia, and what to do to

address it, may help them feel more involved with their family member's care. It may also help families to understand how challenging it can be to address these behaviors, and that sometimes it takes time to find an intervention that may work. Overall, educating all staff members (including auxiliary staff of a long-term-care facility) and family members may be helpful to prevent agitation, intervene, and increase understanding of agitated behaviors.

Intervention That Addresses Unmet Needs

Another commonly mentioned intervention was an 'intervention the addresses unmet needs.' This was very closely related to the cause of 'unmet needs.' Most often, this intervention involved bringing the patient to the bathroom. Other times it involved offering the patient food or drink or having them rest. The frequency in which this intervention was mentioned alludes to the thought that simply bringing a patient who is agitated to the bathroom, giving them food or a drink, or having them lie down for a bit, might help their agitation. These interventions are easy, don't require extra staff, and can be done in little time. Even if the intervention doesn't work, attempting these three things doesn't take much time. It might be helpful to educate clinical staff to address a patient's agitation by first trying to meet possible unmet needs, and then trying other interventions.

Exercise

"Exercise" was another intervention that was mentioned frequently during the interview process. This intervention almost always included walking with the patient. Again, there was a probing question for this intervention, but occurrences were not counted unless the interviewee had tried the intervention and believed it was successful. The probing question asked specifically about exercise therapy or walking and whether or

not they thought it was successful. Some interviewees mentioned bringing the patient for a walk before the probing question could be asked. Overall, every interviewee agreed that walking a patient can help calm their agitation if the patient is able to do so. The only other mentioned form of exercise was physical activity combined with music. Overall, bringing a physically able patient for a walk is another time-efficient, and easy intervention that has the possibility of calming a patient's agitation.

Family Involvement

'Family involvement' was another intervention that was mentioned frequently throughout the interview process. Interviewees discussed how it would be beneficial for the patient to include the family in discussions about how to address their family member's agitation. Interviewees also talked about how it would be helpful if family members gave the clinical staff detailed and additional information about their loved one, such as what type of music they like, what has been successful at calming them down in the past, their likes and dislikes, and their home routine. When the patient first arrives at a long-term care facility it might be helpful if someone, like a case-manager or nurse, sat down with the family and discussed these specific points and additional information about the character and personality of the patient. Also, it might be helpful if the family was continuously involved in discussions about how their loved one's agitation is being addressed, and what may or may not help. This may include monthly meetings with the family in person, or over the phone. Lastly, in some situations in which the patient is very agitated it might be helpful, if possible, to have the family come to visit or talk with the resident. This intervention was mentioned during the interview process and could be a possible way to calm moderate to severe agitation. However, this specific intervention

isn't always possible because family isn't always available or nearby. When the family is unavailable to visit in person, maybe a phone call or video chat with the family member would work to calm agitation. This intervention would be an easy way to get family members involved in their loved one's care and would be more time efficient.

Communication

'Communication' is a broad intervention that can mean a lot of different things. There are many different and unique ways to communicate with patients who have dementia. In addition, there is also a lot of information about techniques and tools to use when talking with someone who has dementia. However, these communication techniques and their efficacy are not heavily researched. With that said however, throughout this study, many interviewees mentioned the importance of communication in calming agitation in patients with dementia. Some mentioned just talking with the patient, reassuring the patient and that they are safe, and engaging in casual conversation with them. One interviewee mentioned using communication to divert or redirect what the patient believes is a stressful situation. The interview talked about telling a patient who is frantically looking for their car keys that the car is in the shop, and that they'll have it back soon (Ruby). Other communication techniques that were mentioned included getting down to the patient's eye level when talking with them, slowly talking them through tasks, being patient, having one-on-one conversations, and not arguing with the patient. These communication techniques seem to be important in calming and preventing agitation. In the future, it may be helpful to educate clinical staff, long-term care staff, family members, and other caregivers on how to communicate and be patient with someone who has dementia. Learning communication strategies may help to both prevent

agitation and de-escalate or calm agitation that is already present. One important piece of information to remember is an idea that mentioned multiple times throughout the interview process. This idea is that patience is of high importance. Although taking the time to speak with a patient, whether it be having a simple conversation, talking about the past, attempting to find out what the patient needs, or slowly talking them through tasks, might take time, it can also be highly rewarding when it comes to preventing or calming agitation.

Maintaining Safety

There were multiple interventions that fell under the category of ‘maintaining safety.’ The interventions mentioned most frequently were (1) calling in extra help from other clinical staff members and (2) giving medications to calm the patient when necessary to prevent harm to self or others. Interviewees frequently mentioned, without any probing, that maintaining the safety of patients, staff, and others is a top priority in the treatment of agitation. Sometimes medications and extra help are needed to prevent a patient from hurting themselves and/or others. Although there are many other non-pharmacological interventions discussed in this study, it is important to understand that when agitated behaviors threaten the individual or others, it might be necessary to give them medication to calm them down. Calling in help from other C.N.A.s, nurses, or clinical staff, whether it be physical help, or collaboration about how to address agitation, is another easy intervention that protects the patient’s safety and may lead to calming the patient’s agitation. Clinical staff should not be afraid of asking for help from their coworkers. It is also critical to create a safe environment for the patient, and to be sure that the patient is in a safe setting before leaving them alone. This is important for

protecting the patient and others from injury. Overall, safety is a fundamental thought to consider with any intervention, and it should always, without any exceptions, be maintained.

Keeping A Consistent Schedule

Another intervention that was mentioned throughout the interview process was the important of keeping the patient on a consistent schedule. Four different interviewees mentioned that this was important. One interviewee mentioned keeping the patient on a consistent toileting schedule, to prevent agitation that could arise from the unmet need of having to use the bathroom. A few interviewees mentioned the significance of talking with the patient's family members about the type of schedule that the patient was following at home. Understanding the schedule that the patient followed before arriving to the hospital or care center might help staff to create a similar schedule for the patient so that they can hopefully prevent agitation stemming from having an unfamiliar schedule. Another interviewee talked about the importance of keeping the patient on a normal sleep-wake pattern. Some of these interventions may require extra time and dedication to stick to, and they may not always be within entire control of staff (especially keeping the patient on a normal sleep schedule). With that said however, this could be an intervention that contributes to the prevention of agitation. As mentioned earlier, one recommendation relating to this intervention could be initiating a discussion with family members about the patient's usual schedule, and then trying to follow that schedule as close as possible. Overall, 'keeping a consistent schedule' could be significant to prevent agitation from occurring, but it wouldn't necessarily be useful in addressing agitation in the moment that it is taking place.

Freedom, Autonomy, and Purpose

Another category of interventions that appeared as a recurrent theme throughout the interview process were interventions that allowed the patient ‘freedom, autonomy, and purpose.’ Interviewees talked about allowing patients with dementia more freedom by not unnecessarily restricting them to a specific area, such as a specific unit or room. They also talked about giving the patient a purpose by having them do small activities that might be helpful to staff. This suggestion included activities such as sweeping the floor, folding towels, or cleaning. Although these small activities might not help the staff in any way, they give the patient with dementia a sense of purpose and worth. One interviewee specifically mentioned this when she stated that it is important to find “things that people can do, or help out with, that gives them a feeling of worth, and purpose, so that they’re not just there being taken care of like invalids” (Emily). These activities, although small, may go a long way in helping a patient with dementia feel like they are helping out, and may reduce their agitation because of that. It is easy for anyone who feels like they are worthless and don’t have a purpose to feel upset and frustrated.

Another thought was that it is important to give the patient a choice whenever possible. These choices might include choosing what to wear in the morning, choosing what activities to do, choosing what to eat or drink, and other decisions. Although these choices might be small and seemingly insignificant, they can give the patient a sense of autonomy and control. When giving a patient with dementia a choice, it might be helpful to only give them two or three different options at a time. For example, instead of asking the patient ‘What do you want to wear today?’ a staff member could ask them ‘Would you like to wear your blue shirt or your red shirt?’ Overwhelming the patient with too

many options might actually lead to agitation or make it worse. With that said however, giving a patient with dementia a few different choices may lead to reducing or preventing agitation. Overall, it is important to remember that any patient with dementia is a person, just like anyone else, and it is important to treat them as so. This involves giving them a little control over their day, giving them an opportunity to make choices, and helping them to feel purpose and worth. It is easy for anyone to get frustrated, upset, and agitated when they feel like they have lost control and no longer have purpose. This feeling and emotion doesn't change just because someone has dementia. It is important to educate staff on this fact and encourage them to treat patients with dementia with the same dignity as they would treat any other patient in their care.

Pain Relief & Massage

The interventions of 'pain relief' and 'massage' are both closely related to the identified cause of 'pain.' This is another possible intervention that could have been included as an 'intervention the addresses and unmet need'. However, it was excluded from that category because it was believed that it was important to look specifically at how interviewees go about addressing pain. Most of the time, interviewees didn't mention specific interventions for pain, they just mentioned that it is important to treat pain in order to decrease one's agitation. It was interesting that 'pain' was mentioned as a cause of agitation by five different interviewees and nine times overall, but treating pain was only mentioned by three different interviewees and only five times. This dichotomy between the number of times pain was mentioned as a cause, and the number of times pain relief was mentioned as an intervention is intriguing. This could mean that clinical staff recognizes that pain is a cause of agitation, but don't as often think of pain relief as

an effective intervention to calm agitation. Or it could mean that interviewees don't know what to do when they think that a patient is having pain. It may be important to educate clinical staff about the importance of pain management and its role in reducing agitation. As mentioned earlier, this dichotomy could also be related to the fact that it's difficult to assess pain in this specific population of patients that have dementia. As noted earlier, it may be important to educate all clinical staff on how to recognize signs that a patient is having pain, and teach them that when they do believe a patient is displaying signs of pain to grab a nurse to assess the patient and treat the pain if needed. Overall, it is important to educate clinical staff the role that pain plays in patients with dementia so that they can treat it appropriately and possibly reduce agitation that is related to pain.

One other thought that was mentioned along with pain relief, was the effectiveness of massage at reducing pain and calming agitation. One interviewee mentioned a few times how she uses back massage to address agitation and relieve patients' pain. This individual talks about how she believes that massage is extremely effective at reducing both pain and agitation in patients with dementia. Overall, it is important to remember that (1) pain is a possible cause of agitation, (2) treating pain can reduce agitation, and (3) it is possible that even a simple act such as giving a patient a massage may aid in reducing their agitation and offer pain relief.

Environment

Another possible intervention to address agitation is to examine the patient's environment and change anything within it that might be contributing to agitation. This may be related to activities and stimulation and might involve reducing stimuli by turning off the lights or TV or increasing stimulation by bringing the patient to an area where there is more activity, such as a dining room or by the nurses' station. Another intervention that was mentioned was the significance of creating an environment that is familiar to the patient. This might include having the family bring in items from home and into the room where the patient is staying. Creating an environment in which the patient feels at home, or at least recognizes as familiar, might help to prevent and reduce agitation. Overall, considering the patients' environment as a cause of agitation, and manipulating it as an intervention, might lead to preventing agitation, and possibly even reducing it. These interventions such as reducing stimulation, increasing stimulation, and asking the family to bring in familiar items from home, are easy and time efficient, and could possibly make a big difference in the patient's agitation.

Reflection

Lastly, 'reflection' is another intervention that may possibly lead to a reduction in agitation. Interviewees talked specifically about having the patient look at photos from their past or having a conversation with the patient about their past and what was and is important to them. Along with helping to reduce agitation, asking the family to bring in old photos, might possibly help the family to feel more involved in their loved one's care. These interventions take little time but may possibly go a long way in reducing a patient's agitation.

Recurring Idea – Everyone is Different

One recurring idea that was present throughout the interview process that was not directly a cause or intervention, was the idea that every person with dementia is completely unique and different. Interviewees talked about how different patients have different common causes of agitation. They also talked about how interventions must be uniquely tailored to the individual, and how just because one intervention frequently works for one patient, doesn't necessarily mean that it will work for the next.

Interviewees also talked about how some patients have specific behaviors that may point to a specific cause, but that these behaviors are not consistent between everyone that has dementia. For example, just because Patient A wanders around the hallways when she needs the bathroom, doesn't necessarily mean that when Patient B wanders the hallways he needs to use the bathroom. Patient B might wander the hallways when he is hungry and looking for food. One interviewee illustrated this thought beautifully in an explanation. When asked about different interventions for agitation, she explained:

I mean I kind of see it like anything else in medicine, you and I could both have a sinus infection and one antibiotic might work for me, and it might not work for you. But you kind of have to try. I would agree with you [that with] dementia patients too – [there are] kind of like those cardinal things that we can all do, but then we have to customize it from there (Heidi)

This interviewee's example of how one intervention may work for Patient A but not for Patient B is well representative of what other interviewees discussed about the importance of individually tailoring interventions. A suggestion for future practice is for clinical staff to take into consideration that interventions must be individualized. This doesn't mean

that the interventions previously listed won't work, instead, it means that multiple interventions might have to be tried before something works. Similarly, the intervention depends on the situation. If one intervention works one time, it doesn't mean that it's going to work the next time. Also related to individualizing interventions, it is important to take into consideration the patients likes and dislikes. It might be helpful to obtain this information from a family member and use it to tailor individualized interventions. For example, if a patient really likes listening to classical music then it probably won't reduce their agitation if someone turns on rap music. In summary, it is important to trial and error different interventions for each individual and situation, and to take into account a patient's likes and dislikes when forming an intervention.

Summary of Recommendations & Actions

Many different causes and interventions were discussed throughout this study. *Table 4* and *Table 5* summarize the recommendations that were previously discussed for each cause and each intervention. In addition to this table there are additional recommendations were made throughout the study that needed further explanation and elaboration. These three additional recommendations are related to designing a checklist, keeping track of what interventions worked in the past, and education. Interviewees believed that these recommendations were extremely important and would be beneficial to any organization that works directly with patients who have dementia.

Table 4

Summary of each cause and the corresponding recommendations and findings.

Cause	Recommendations & Findings
Unmet Needs	<ul style="list-style-type: none"> • Educate that agitation can be caused by unmet needs • Trying to figure out what the patient needs (if they need anything) and trying to find a way to fulfill that need might calm a patient's agitation.
Unmodifiable Causes	<ul style="list-style-type: none"> • Increase understanding that agitation can be caused by circumstances that can't easily be changed. • Agitation that is caused by unmodifiable causes might benefit from interventions such as music therapy, pet therapy and other calming activities.
Pain	<ul style="list-style-type: none"> • Increase understanding that agitation can be caused by pain. • Nonpharmacological methods may offer some pain relief to patients. • Educate caregivers on signs that a patient with dementia can display if they are in pain, so that they can reach out to the nurse or clinician who can better assess and treat it.
Anxiety/Fear or Frustration	<ul style="list-style-type: none"> • Increase understanding that agitation can be caused by anxiety, fear, or frustration • Educate clinical staff to take their time to slowly explain or demonstrate tasks that they want the patient to complete • Educate clinical staff to frequently give patient's choices with one or two options (ex. Would you like to wear the green shirt or the red one?) • Educate clinical staff about how to psychologically support the patient by telling them that they are doing a good job when completing the task.
Too Much or Too Little Stimulation	<ul style="list-style-type: none"> • Increase understanding that agitation can be caused by too much or too little stimulation. • Turning off the TV, reducing background noise, limiting interruptions, and dimming the lights may help to reduce stimulation and agitation caused by over-stimulation • Turning on the TV or moving the patient to a common area may help to increase stimulation and agitation caused by under-stimulation.
Uncomfortable Position	<ul style="list-style-type: none"> • Increase understanding that agitation can be caused by the patient being uncomfortable in their current position.
Other Causes	<ul style="list-style-type: none"> • Educate that agitation can have other causes as well. • Environment = Have family bring in familiar items from home. • Tiredness = Encourage the patient to take a nap • Looking for someone = Redirect the patient, assure them that that person they are looking for is safe and at home.

Table 5

Summary of each intervention and the corresponding recommendations and findings.

Intervention	Recommendations & Findings
*Choosing an Intervention by Using a Checklist, Prior Knowledge, or Determining Cause	<ul style="list-style-type: none"> • A checklist, using prior knowledge of the patient, and determining a cause could all be effective at calming agitation. • Determining a cause of a patient's agitation might lead to a more individualized and therefore effective intervention
Activities or Stimulation (Music, Pets, Aromatherapy, TV, Baby Dolls, Bathing, etc.)	<ul style="list-style-type: none"> • Simple activities such as turning on the TV might be effective at calming agitation. • Music therapy is sometimes effective at preventing or calming agitation when the music is individualized. • Aromatherapy offers little benefit at calming agitation • Pet therapy may help calm or prevent agitation in some patients. • Other activities, that are tailored to the individual (such as folding towels for an individual that loves to do laundry), may be more effective at calming agitation than other interventions.
Redirection	<ul style="list-style-type: none"> • Redirection may calm agitation in some situations • Redirection doesn't always address the cause of agitation, so the agitated behaviors may re-occur within a small time period.
*Education	<ul style="list-style-type: none"> • Educate all staff within a facility that houses patients with dementia about dementia and agitation. • Educate family about agitation and dementia.
Intervention That Addresses Unmet Needs	<ul style="list-style-type: none"> • Simple actions such as bringing a patient to the bathroom, offering them food or drink, or having them lie down for a bit, may help meet an unmet need and calm their agitation.
Exercise	<ul style="list-style-type: none"> • Educate staff to bring the patient for a walk, if they are physically able to, as this may help calm their agitation.
Family Involvement	<ul style="list-style-type: none"> • Have clinical staff sit down with the patient's family during admission to discuss the patient's likes and dislikes, what calms them down, and the general schedule they had at home. • Calling the family or asking them to visit during periods of agitation may help calm the patient

* Recommendations for these interventions are further discussed in the summary of recommendations

Table 5 Continued

Intervention	Recommendations & Findings
Communication	<ul style="list-style-type: none"> • Engaging a patient in a one-on-one-conversation may help to calm a patient's agitation. • Educate staff to speak to patients at an eye level, not argue with them, be patient, and slowly walk them through tasks.
Maintaining Safety	<ul style="list-style-type: none"> • Educate staff that safety of the patient and others is always to be a top priority • Understand that sometimes clinical staff may have to give medications stop patient from harming anyone. • Encourage staff to ask for help if needed
Keeping A Consistent Schedule Freedom, autonomy, and purpose	<ul style="list-style-type: none"> • Keep the patient on a specific toileting and daily schedule as this may help to prevent agitation. • Encourage staff to find activities that help the patient feel worth and purpose (such as sweeping the floor, folding towels, cleaning, etc.), as this may help to calm and prevent agitation. • Encourage staff to give the patient choices with two options.
Pain Relief/Massage	<ul style="list-style-type: none"> • Educate staff that agitation may be a sign of pain • Massage may be beneficial in reducing the patient's pain and therefore agitation • Treating pain with medication may help to reduce a patient's recurring agitation.
Environment	<ul style="list-style-type: none"> • Turning off the TV, reducing background noise, limiting interruptions, and dimming the lights may help to reduce stimulation and agitation caused by over-stimulation. • Turning on the TV or moving the patient to a common area may help to increase stimulation and agitation caused by under-stimulation. • Encourage families to bring familiar items from home that may make the patient feel like they are in a familiar environment.
Reflection	<ul style="list-style-type: none"> • Encourage families to bring old photos • Educate staff that helping a patient to look through old photos or talking to them about their past might help calm agitation.

* Recommendations for these interventions are further discussed in the summary of recommendations

Designing a Checklist

As mentioned earlier, all six interviewees agreed that using a checklist that includes interventions and common causes of agitation, would be a helpful tool when trying to calm a patient with dementia who is agitated. Taking into consideration this recommendation, a checklist was made with the previously identified common causes and interventions of agitation. This checklist can be found in *Figure 3* and in more detail in *Figure 4* in Appendix B. Not only does the checklist include common causes and interventions that were identified throughout the interview process, it also uses the mnemonic 'PEPPERMINTS' to help clinical staff remember different interventions to trial and error when addressing agitation. It takes into consideration that some agitated behaviors are caused by unmet needs, pain, stimulation, and even unmodifiable causes. This checklist may be helpful for staff to remember interventions and might be useful if hung up around nursing stations, or maybe even in patients' rooms who have dementia and frequently become agitated. The checklist combines many of the recommendations that were identified throughout the interview process. Overall, this checklist could be a very valuable tool to reference when trying to calm agitation as it is occurring.

Figure 3. Checklist created using data and conclusions that were collected from the literature review and qualitative study

PEPPERMINTS

Interventions to address agitation in patients with dementia

Potty – Try to bring the patient to the bathroom.

Environment – Is it too hot, too cold, too loud or too quiet? Try dimming the lights and reducing noise. Turn on the TV if its too quiet. Show them where their room or a place to relax is.

Pain – Signs of pain include labored breathing, moaning, facial grimacing, sadness, fidgeting, clenching fists, hitting, crying, etc. Assess the patient's pain. Do they need pain medication? Will massage help?

Position – Is the patient uncomfortable? Do they need to be repositioned? Are their clothes on straight and not wrinkled? Try making sure that they are comfortable?

Exercise – Go with the patient for a walk if they are able. Have them do upper body exercises to the beat of music. Find other ways to help the patient exercise.

Redirection – Can the patient's attention be redirected from what is making them agitated? Try and change the topic of the conversation.

Mood – Is the patient anxious, scared, frustrated, tired, or sad? Remove the patient from situations that may be causing anxiety or frustration. Show them to their room or common area. Reassure them that they are safe. Try talking with them about how they feel.

Involve – Is the patient bored? Involve them in activities such as easy crafts, folding towels, sweeping the floor, listening to music, pet therapy, cards, games, etc. Turn on the TV or move them to a more common area so they can observe their surroundings.

Nutrition – Is the patient hungry? Offer a small snack.

Thirst – Is the patient thirsty? Offer a drink of water.

Social – Is the patient lonely? Place them by another patient or a staff member. Try talking with them. If they can call a family member or friend, have them do so. Have the patient look through old photos or tell you about their past.



Keeping Track of What has Worked in the Past

As mentioned earlier, all six interviewees agreed that it would be helpful to have some way keep track of which interventions have worked in the past for each patient. They also agreed that this information would be helpful if it was easily assessable in the patient's chart. Although interviewees were all supportive and enthusiastic about having some way to keep track of effective interventions for each patient, there were also problems that arose with privacy. HIPPA prevents information such as this from being displayed, for everyone to see, in the patient's room. With that said however, several creative ways could be designed to circumnavigate this obstacle.

One idea would be an area in the patient's electronic chart could be designed specifically for notes about the patient's dementia and agitation. This could be a separate tab that allows staff to pick patients' likes and dislikes, common behaviors, and what interventions have been effective. This information could be organized in an easy to read format. Some facilities already have some version of this recommendation, but the information may be hard to access, or organized in a way that is difficult to look at quickly. The benefit of using computerized documentation would be that, if the patient gets transferred to a different facility, or is only in the hospital for short periods of time, this information would travel with them, on their chart, and would be assessable for the next time anyone needs it. Taking into consideration a suggestion from an interviewee, family could also be involved. Similar to an 'admission navigator' in which questions are asked that are required for admission to a hospital, there could be a 'dementia navigator,' which includes questions for the family about what the patient enjoys doing, what they dislike doing, what calms them down, what their home schedule was, what they do and

don't like to eat, what kind of music they like to listen to, whether or not they like pets, and so on. This intervention would require help from IT to re-design the online chart and could be a costly process. For facilities that use paper charts, an extra 'dementia' section could be added to keep track of behaviors, interventions, likes, and dislikes. This idea is probably the most ideal, even though some long-term care facilities only have computers and charts at a nurses' station, and clinical staff would have to leave the patient's room to look at the chart.

A second idea would be to have a "get to know me" sheet in each patient's room that the family can fill out about the patient's likes and dislikes. This information is not confidential and can be displayed. However, behaviors and interventions are confidential information and could not be included on that sheet. One suggestion may be to have a locked drawer or cabinet in each patient's room that contains a binder, or sheet that keeps track of behaviors and common interventions that have or haven't worked in the past. Overall, these are just a few suggestions that involve keeping track of the patient's dementia, their likes and dislikes, their behaviors, and interventions that have or haven't been successful at calming agitation. Interviewees agreed that this information would be valuable, and therefore these suggestions may be beneficial to choosing an effective intervention.

Education

Many of the causes and interventions mentioned throughout this study could be better addressed by further education. 'Education' itself was previously discussed as an intervention. It was noted that it is extremely important to educate everyone who works with patients who have dementia, including staff such as housekeepers, dietary, social workers, therapists and clinical staff such as nurses and aides. Included in this should be education about dementia, agitation, and ways to respond to agitation. Education that may be beneficial to staff would be different depending on the role of the staff member. It would make sense for clinical staff to receive more education about interventions for agitation than a housekeeper or dietary aide. However, it is important for these individuals to receive general information about dementia, how agitation is common, and how to prevent it. For example, education about prevention may include talking about the importance of giving the patient a choice over what they want to eat, or the importance of avoiding cleaning the patient's room when they are taking a nap. Education for axillary staff may also include the importance of grabbing a clinical staff member if the patient's agitation worsens or begins to threaten the safety of either the individual themselves, or others around. There are multiple ways to go about educating staff members on dementia and agitation. Education could include meetings with staff, computer-based learning assignments, and posters or flyers throughout the unit.

Early in the process of writing this paper, a poster was created and designed to portray information about the different evidence-based interventions discussed in the literature review. This poster was then presented at an undergraduate research conference at the University of South Dakota in the Spring of 2018. This poster can be found in

Figure 5 in Appendix C. Posters similar to this could be developed and presented to increase awareness of evidence-based methods to calm agitation in patients with dementia. Overall, education is an extremely important intervention for preventing and managing agitation in patients with dementia. It encompasses a lot of the other interventions that were mentioned throughout the study. Educating staff and families should be one of the first priorities when designing an action plan for addressing agitation in patients with dementia.

Limitations

Reflecting upon the interview process, it is important to discuss the possible limitations of this study. Limitations could include lack of existing research, an insufficient sample size, and participants that may not have been truly representative of the entire population being studied. First, as mentioned previously, very little research existed on the effects on agitation for many of the interventions discussed throughout the literature review. This lack of quality research made it difficult to come to any conclusions about the efficacy of these interventions. Further, higher quality research is needed on all of the interventions listed throughout the literature review.

Second, as part of the qualitative study, only six participants were selected for interviews, and these participants may not have been completely representative of the entire population being studied. If this study were to be repeated, it might be important to increase the number of interview participants and use a more random participant selection process. Since this study had to be completed within a limited amount of time to fulfill a requirement for graduation, interview participants had to be selected quickly. Since it was difficult to recruit participants via calling nursing homes and asking them to forward

information about the study, a social media post was used to recruit study participants. Using social media to find willing participants might have limited the targeted population and led to participants that were not wholly representative of the entire population being studied. For example, using social media may have led to a demographic selection bias by leading only to younger participants that are more likely to be looking at social media. However this specific example wasn't necessarily the case in this specific study, as multiple people who read the social media post spread the information to others who didn't have social media and older participants were recruited along with younger ones. If this study were to be repeated social media could still be used to recruit participants, as it is a fast way to spread information about the study. However, it might be beneficial for researchers to be aware of this possibility for demographic selection bias and to be sure that it is not affecting their study population.

Conclusion

In conclusion, the purpose of this study was to improve the care of patients with dementia by identifying evidence-based interventions and developing tools and recommendations to decrease agitation. This study, through an extensive literature review and qualitative study fulfilled this purpose by identifying causes of agitation, and interventions that can be used to prevent or address it. It was discovered that, overall, interventions seem to be most effective when they address the patient's needs, are individualized for the patient, and involve the creation a sense of purpose for the patient. One specific tool that was developed to decrease agitation and improve the care of patients with dementia, was a checklist. This checklist was created to summarize different interventions that can be used to address agitation It also involved the pneumonic

‘PEPPERMINTS’ to make these interventions easier to remember in moments of observing agitation. Also, integral to improving practice is educating staff members and families about agitation, dementia, interventions and prevention. Education on effective interventions, addressing unmet needs, individualizing care, using the designed checklist, and communicating with patients who have dementia, is incredibly important to changing clinical practice and improving the quality of care and life for these patients.

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Appendix A

Exact wording of the informed consent letter that was electronically delivered and agreed upon before each interview began.

Dear:

You are invited to participate in a research study. The purpose of the study is to improve patient care and the nursing process by identifying evidence-based interventions for agitation in patients with dementia. This research study will help us to identify which interventions are currently being used to address agitation in the dementia patient, along with which interventions seem to be effective. This information will allow us to discover which agitation interventions are effective and feasible to use in a long-term care setting.

We are inviting you to be in this study because you work in a long-term care facility and you may have experience working with patients who have dementia.

If you agree to participate, we would like to schedule an interview with you over Skype or in person. During this interview we would like to ask you several questions how you approach patients with dementia who are displaying agitation. The interview will take approximately 30-45 minutes to complete.

We will take steps to protect your responses and the confidentiality of the data however federal regulatory agencies and the University of South Dakota Institutional Review Board (a committee that reviews and approves research studies) may inspect and copy records pertaining to this research.

Your responses will be kept confidential and will be used only for research purposes. Your responses to interview questions will be audio recorded. However, the interviewer will inform you of when the audio recording begins and ends, and during that time we will ask you not to share any personal information such as your name or the name of the place that you work. This way only the interviewer will know of your participation in the study and will be able to link your responses to your name. After the interview has ended, the interviewer will transcribe the recording without including any identifying information. After the recording is transcribed the audio recording of the interview will be destroyed.

There are no known risks from being in this study, and you will not benefit personally. However, we hope that others may benefit in the future from what we learn as a result of this study.

Your participation in this research study is completely voluntary. If you decide not to be in this study, or if you stop participating at any time, you will not be penalized or lose any benefits for which you are otherwise entitled.

If you have any questions, concerns or complaints now or later, you may contact us at the number below. If you have any questions about your rights as a human subject, complaints, concerns or wish to talk to someone who is independent of the research, contact the Office for Human Subjects Protections at 605/677-6184. Thank you for your time.

Dr. Randy Quevillon

Appendix B

Table 6

Complete results of the causes of agitation that were identified throughout the interview process.

Mentioned Causes	Number of Interviews where Mentioned	Total Times Mentioned
Unmet Needs	6	16
Unmodifiable Causes	6	12
Pain	5	9
Anxiety/Fear or Frustration	3	9
Too Much or Too Little Stimulation	3	7
Uncomfortable Position	2	4
Not Enough Staff	1	3
Environment	1	2
Tiredness	1	2
Loneliness	1	1
Depression	1	1
Infection	1	1
Looking for Someone	1	1

Table 7

Complete results of the interventions of agitation that were identified throughout the interview process.

Mentioned Interventions	Number of Interviews where Mentioned	Total Times Mentioned
Choosing an Intervention by Using a Checklist, Prior Knowledge, or Determining Cause	6	41
Activities or Stimulation (Music, Pets, Aromatherapy, TV, Baby Dolls, Bathing, etc.)	6	36
Redirection	6	17
Education	6	16
Intervention That Addresses Unmet Needs	6	11
Exercise	6	10
Family Involvement	5	15
Communication	5	14
Maintaining Safety	4	10
Keeping A Consistent Schedule	4	6
Freedom, autonomy, and purpose	3	9
Pain Relief/Massage	3	5
Environment	3	5
Reflection	2	6
Motivation	1	4
Patience	1	2
Noticing Signs	1	1
Spiritual Care	1	1
Gender Based Activity	1	1
Weighted Vest	1	1

Figure 4. PEPPERMINTS checklist with interventions for agitation.

PEPPERMINTS

Interventions to address agitation in patients with dementia

Potty – Try to bring the patient to the bathroom.

Environment – Is it too hot, too cold, too loud or too quiet? Try dimming the lights and reducing noise. Turn on the TV if its too quiet. Show them where their room or a place to relax is.

Pain – Signs of pain include labored breathing, moaning, facial grimacing, sadness, fidgeting, clenching fists, hitting, crying, etc. Assess the patient's pain. Do they need pain medication? Will massage help?

Position – Is the patient uncomfortable? Do they need to be repositioned? Are their clothes on straight and not wrinkled? Try making sure that they are comfortable?

Exercise – Go with the patient for a walk if they are able. Have them do upper body exercises to the beat of music. Find other ways to help the patient exercise.

Redirection – Can the patient's attention be redirected from what is making them agitated? Try and change the topic of the conversation.

Mood – Is the patient anxious, scared, frustrated, tired, or sad? Remove the patient from situations that may be causing anxiety or frustration. Show them to their room or common area. Reassure them that they are safe. Try talking with them about how they feel.

Involve – Is the patient bored? Involve them in activities such as easy crafts, folding towels, sweeping the floor, listening to music, pet therapy, cards, games, etc. Turn on the TV or move them to a more common area so they can observe their surroundings.

Nutrition – Is the patient hungry? Offer a small snack.

Thirst – Is the patient thirsty? Offer a drink of water.

Social – Is the patient lonely? Place them by another patient or a staff member. Try talking with them. If they can call a family member or friend, have them do so. Have the patient look through old photos or tell you about their past.



Appendix C

Figure 5. Poster describing different evidence-based interventions discussed in the literature review. Presented at USD research conference a in the Spring of 2018.



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